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ATHLETIC JOURNAL

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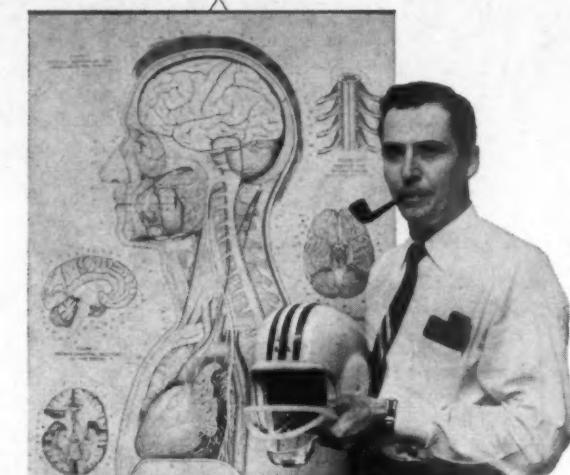
A Special Report to Athletic Directors, Coaches and Trainers...

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ever developed."

Charles Hagemeyer

RAWLINGS DIRECTOR OF RESEARCH
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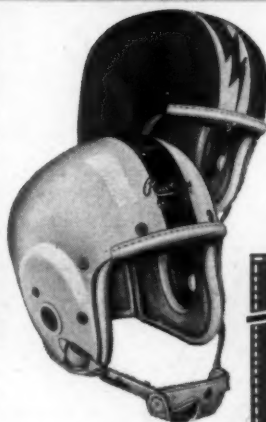
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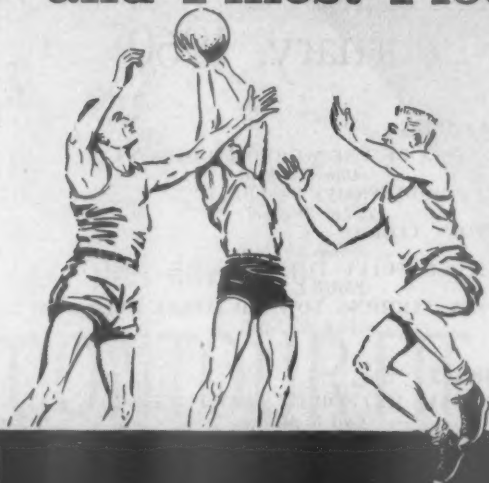
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THE ATHLETIC JOURNAL

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February, 1960

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FRONT COVER ILLUSTRATION

Lending a mighty hand (and bat) to the L. A. Dodgers on their way to baseball's pinnacle were Snider, Gilliam, Moon, Hodges, Furillo, and Essegian whose batting styles are analyzed pictorially and verbally starting on page 8.

A Look At This Issue and a Glance Ahead

At the College Baseball Coaches' Association meetings in New York we showed a number of coaches the engraver's proof sheets of the Los Angeles Dodgers pictures. Their comments confirmed our feeling that these are the finest pictures on this phase of the game to appear in any publication. In planning an issue, we try to cover a variety of activities. In addition to the batting pictures, we are presenting four additional baseball articles as well as articles on

track, football, six-man football, golf, and weight training. Bill Perrin's article on the techniques used by six champion vaulters sets the stage for a well-illustrated article next month on two of the new crop of vaulters. The hurdling form of Hayes Jones will be analyzed, and accompanying the article will be pictures showing some of the other top hurdlers. We are not neglecting baseball next month and are using our high-speed camera to point up the salient features to be found in an article on pitching strategy.

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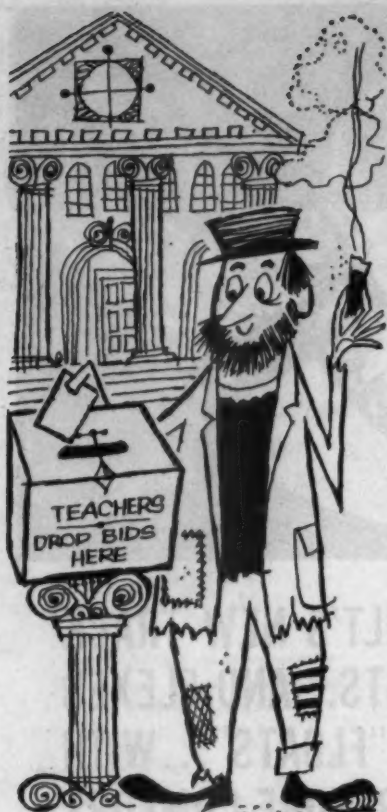
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UNDER a new Olympic regulation each country is entitled to enter one contestant in each track and field event. However, if a country decides to enter more than one contestant, then all of the country's competitors in that event must have equalled or bettered the following standards between October 30, 1959 and August 1, 1960. The events and times have been converted to English measurements. One hundred yards (9.5); 220 yards (21.4); 440 yards (47.6); 880 yards (1:49.8); mile (4:02.0); three miles (13:45.0); six miles (28:50.0); 120 hurdles (14.4); 440 hurdles (52.5); high jump (6-8¾); broad jump (24-7¼); hop step and jump (51-2); pole vault (14-5¼); shot put (55-9¼); discus (173-10¼); javelin (251); hammer (203-5); decathlon (6750 points). The metric equivalents are available from Larry Snyder, Ohio State University, Columbus, Ohio . . . In the twenty-seven years (1931-1958), only one football fatality was due to heat exhaustion. Last fall four of the 29 football fatalities were attributed to heat exhaustion. The rate of incidence of fatalities is less than two per 100,000 participants. Of the 18 fatalities resulting from direct causes, eight were sand lot or semi-pro players, seven were high school players, and the remaining were college . . . Ocean Pool Supply Company recently moved to new enlarged quarters in New York. A scale model swimming pool shows visitors the com-

plete workings of the filter system as well as skimmers . . . More and more high school coaches are attending the annual meetings of the American Football Coaches' Association. The meetings, held in New York in January, were attended by 60 high school coaches from Texas. Five of the eight head coaches in Chicago's Suburban League were in attendance.

★ ★ ★

MICHIGAN competed in the Big Ten indoor track meet for the first time in 1918, and since then has only finished in the second division twice. Even more remarkable is the fact that in 30 of the 41 meets Michigan was either first or second. Over the same span of years Michigan track teams finished either first or second in 28 outdoor conference meets. . . In 15 of the states, the baseball coach is permitted to occupy the coaches' box, while 22 states permit a player to reenter the game. . . The six largest states in point of number of high schools playing football are Texas, Pennsylvania, Ohio, Michigan, New York, and Minnesota. Minnesota is head and shoulders over the rest of the country in the percentage of schools playing football. Last fall 96.5 per cent of the member schools in the Minnesota association competed in some phase of football. This figure compares with the national

(Concluded on page 58)

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Question:

When the second baseman is the pivot man on a double
play, should he go straight to the bag or curve into
a line which would make second base directly between
the thrower and the second baseman?



ETHAN ALLEN, Yale University

The main factor in the double play is rhythm which will
not be present if the second baseman arrives late for the
shortstop's throw. It may also be true when the second base-
man arrives too soon on a fast approach. There are occasions
for both a straight and curved approach, depending on the
original position of the second baseman before the ball is hit
and the angle and distance of the shortstop's throw in relation to the bag. From
this brief analysis it must be assumed that the bag itself plays a major role. This
is the main focal point so that unless the ball and second baseman arrive at
approximately the same time, or the second baseman can take the throw at the
bag, then the method of approach becomes insignificant. Therefore, the pri-
mary objective is *Get to the bag*, and the secondary objective is *Approach the
bag in line with the shortstop's throw*.



ARTHUR MANSFIELD, University of Wisconsin

The important factor in making most double plays is time.
That is the primary reason why we have our men go directly
to the base rather than *circle*. Getting in position at the base
to take the throw and make the pivot also deserves attention,
but if time is available, a player can adjust after he arrives at
the bag. If time is not available, it is essential that the second
baseman get to the base in the shortest period of time by using a straight line.
Make sure of the first put-out. The disadvantage of going straight to the base
is that in case of a poor throw the player is not in as good a position to shift
as he is when the bag is directly in line between the thrower and pivot man.
Our players are instructed to spread their feet as they approach the base to
compensate for a bad throw.



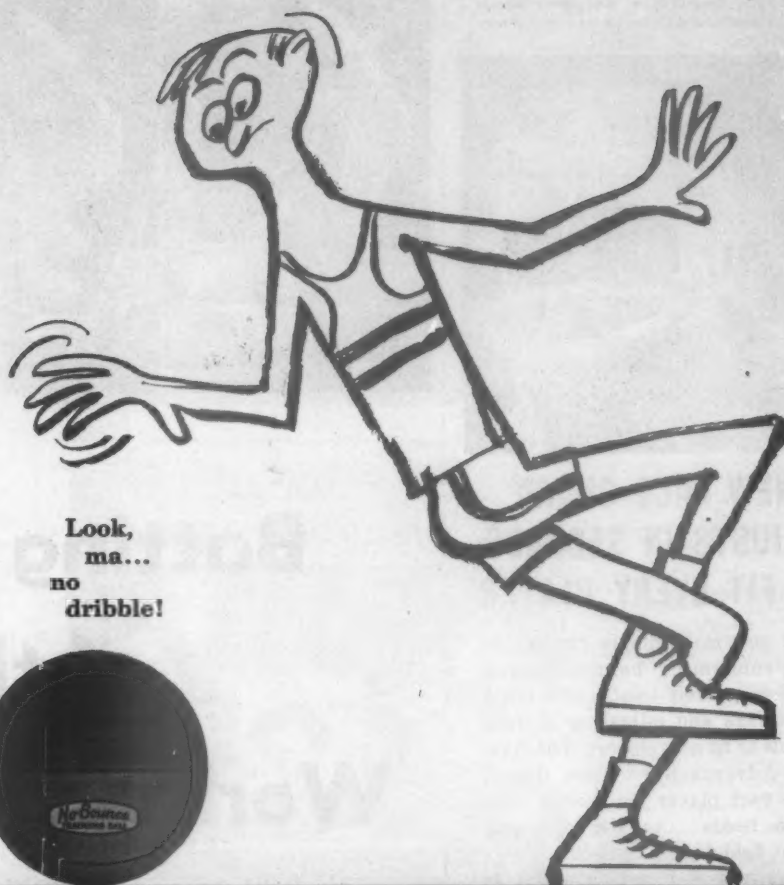
DANNY LITWHILER, Florida State University

Position and time should decide whether the second base-
man should curve or go straight toward the bag. If he has
time, he should curve toward the bag to get in position to re-
ceive and throw the ball. Recommended practice is to receive
the ball on a straight line. However, if the second baseman
gets to the bag with his feet spread, there is little chance of
receiving a throw where it cannot be handled. Double plays are not made so
much by the way the second baseman gets to the bag as where he is when the
ball is caught. It is practically impossible to catch the ball, make the tag, and
then throw the ball to complete a double play. A player must make the tag
prior to catching the ball, and then throw quickly with something on it. The
throw must originate from the player's right foot.



JOHN SIMMONS, University of Missouri

We instruct our second baseman to go directly to the bag,
and be there waiting for the ball. Our feeling is that he is
much more maneuverable in making the pivot, and has several
options in the event of a poor throw. Because of this maneuver-
ability, the *waiting* second baseman is less vulnerable to the
take-out slide in double play situations. His pivot options
when the throw is off target are as follows: 1. If the throw is to the inside of
the diamond, he can cross the bag. 2. If the throw is high or low, he can push
off the bag toward right field in making the relay to first. 3. If the throw is
toward center field, he can step on the bag, and throw from the left field side of
second base. Any second baseman who curves into the bag generally will field
the throw on the move.



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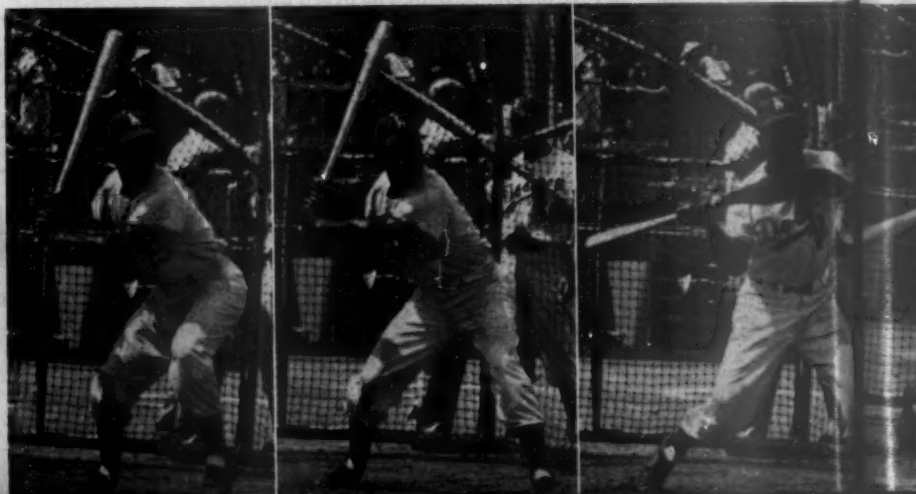
Batting Styles of the World Champions

By **DON WEISKOPF**

College of Education, University of Idaho

DUKE SNIDER. Snider, a long ball hitter who swings from the left side, had a fine season in 1959, hitting .308 and slamming 23 homers. This all-time great slugger has hit 354 home runs during his National League career.

His batting swing is a picture of explosive power. Notice his crouched-over, coiled-up batting stance which straightens up on the swing. Raising his right foot, Snider strides from 6 to 10 inches, hitting off his front leg.





DUKE SNIDER

Duke, a big and strong athlete who can hit a ball out of sight, has his wrists cocked on the stride, rolling them over at contact with the ball. Like all good hitters, Snider hits the ball in the strike zone, well out in front of his body.



JUNIOR GILLIAM. Gilliam, a line drive hitter, has been one of the game's top lead-off men. He has the knack of getting bases on balls, although in 1959 he took his gun off his shoulder and started swinging away, hitting .282 for the year. Junior uses a slight crouch, with his weight evenly distributed, and holds the bat away from his body. On the stride, Gilliam's rear knee has a natural tendency to bend slightly because his weight is on his right leg. His arms lag slightly behind the swing and his front shoulder faces the pitcher until the hip pivot moves it. Using a perfectly level swing, Gilliam hits the ball just a fraction of a second after his stride, with his eyes following the ball to the bat.

JUNIOR GILLIAM

g.
g.
g.

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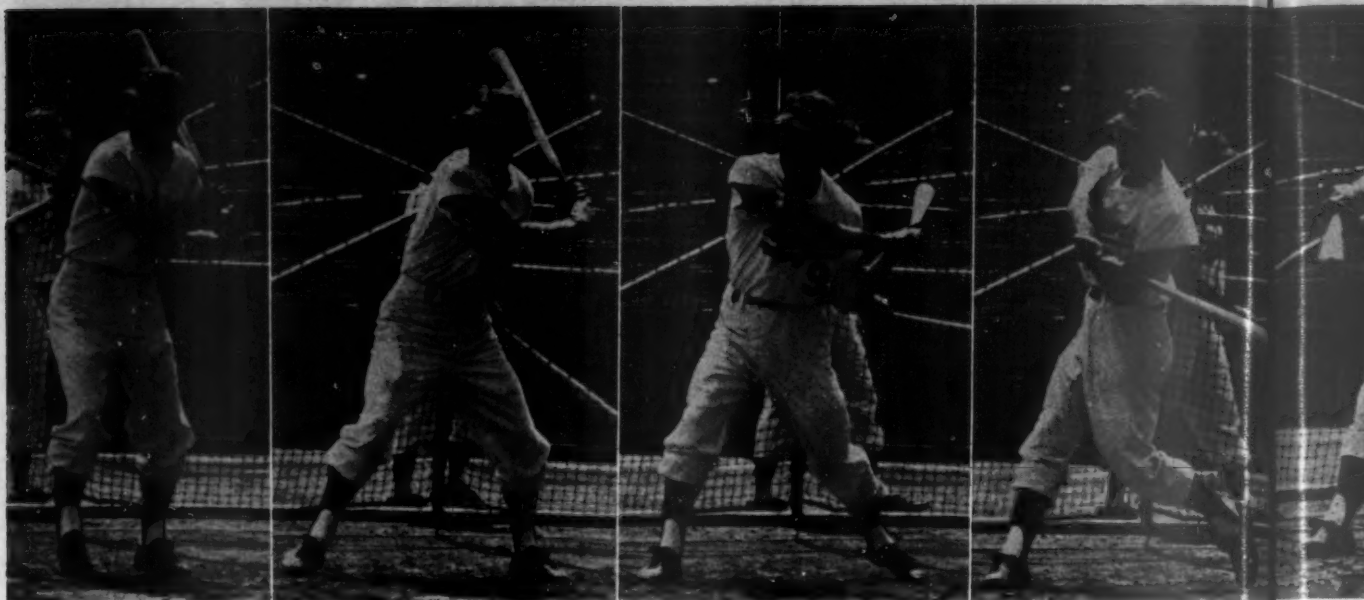
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WALLY MOON

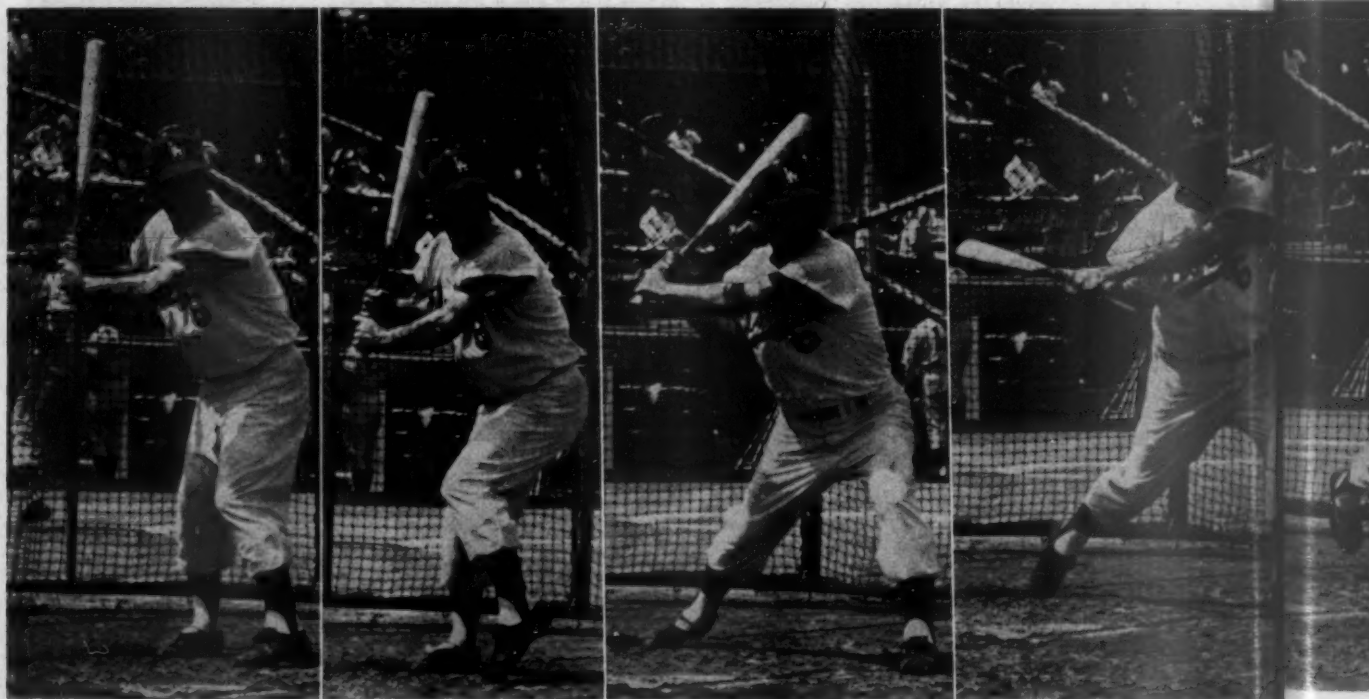


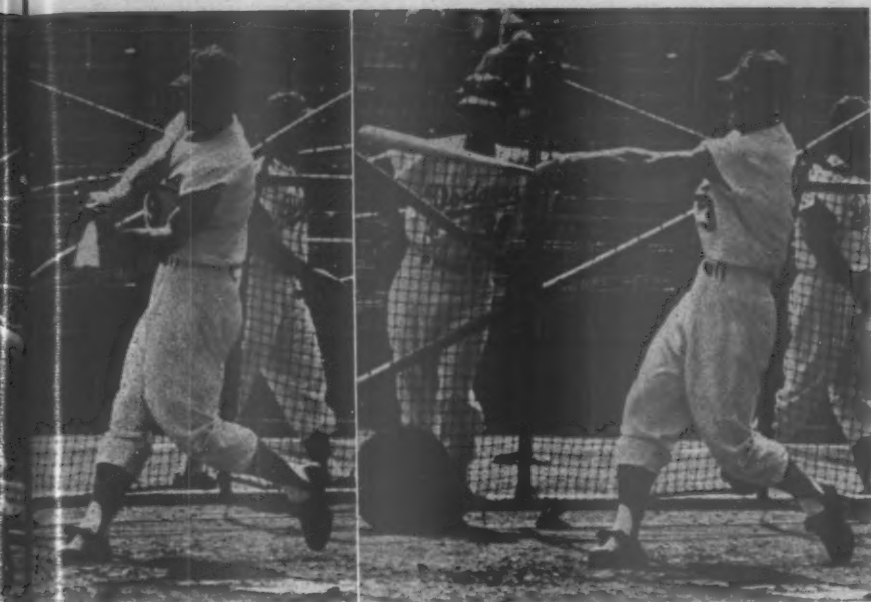
CARL FURILLO

WALLY MOON. Moon, a left-handed hitting outfielder, hit a very consistent .302 average in 1959. His swing shows superb batting form. Wally is shown hitting a waist high pitch. Notice how he keeps his hands and arms away from his body, using a perfectly level swing. He comes in contact with the ball well in front of the plate, hitting against a firm front

leg. His head does not move, and he finishes his swing with a smooth follow-through. Moon, who was supposedly easy for southpaw pitchers, stopped trying to pull everything in 1959 and went with the pitch, with the result that 12 of his 19 home runs went over the Coliseum's famous left field screen, quite a feat for a left-handed swinger.

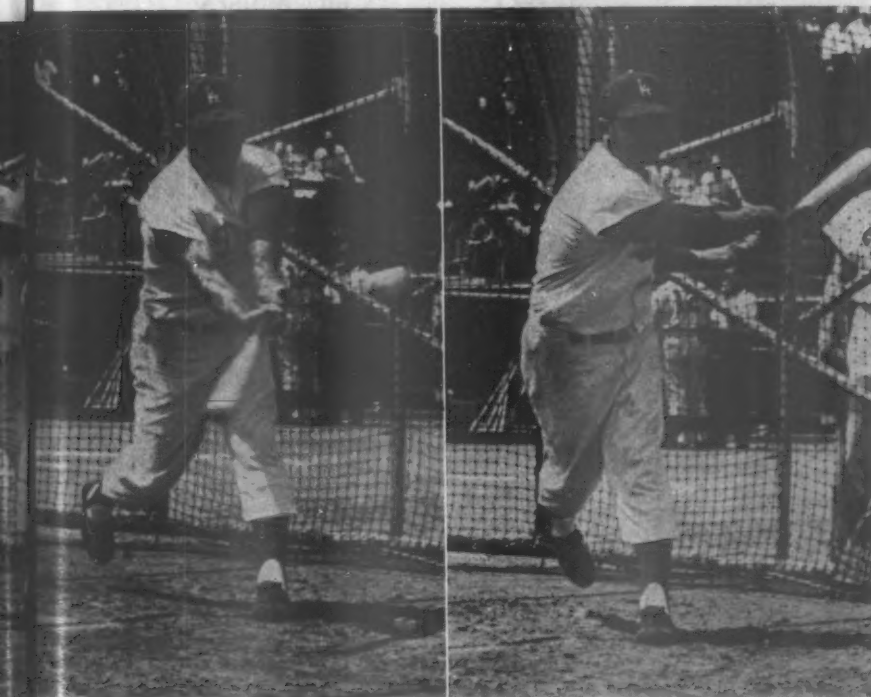
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CARL FURILLO. Furillo, a clutch hitter for the Dodgers the past 15 years, has a lifetime batting average of .300. Although he has hit 192 homers during his major league career, he failed to hit one out during the 1959 campaign, but his key safeties were largely responsible for placing the Dodgers in the World Series. Flexing his left leg, Furillo is another hitter

who lifts his front foot, although his stride is not a long one. These illustrations show Furillo going after an outside pitch and, as a result, do not portray his normal swing. In reaching out for the pitch, Furillo's right hand comes off the bat, and he lifts his rear foot, two violations of a good batting swing.



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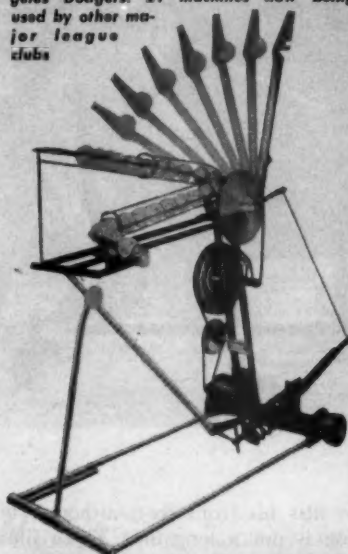
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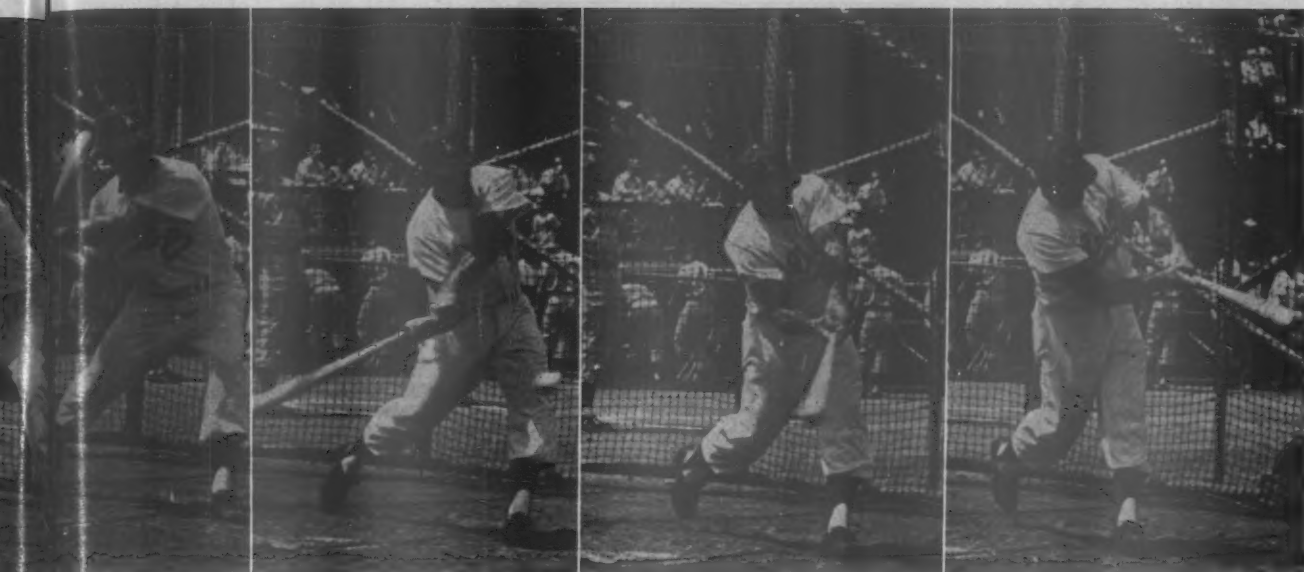


CHUCK ESSEGAN

CHUCK ESSEGAN. The former Stanford football star established an all-time World Series record in 1959 by hitting home runs twice in succession when sent up to bat as a pinch hitter. These pictures are excellent illustrations of a batter going after a knee-high pitch — a perfect synchronization of shoulders and arms. Chuck lowers his arms and shoulders to meet the pitch and still keeps them level. Notice the ball as it is met out

GIL HODGES





in front of the plate. In going after a low pitch, a hitter should not jerk his head. His eyes should follow the ball to the bat. Essegian really leans into the pitch, his weight shifting forward as the ball is met. He follows through with his body leaning in the direction the ball has been hit.

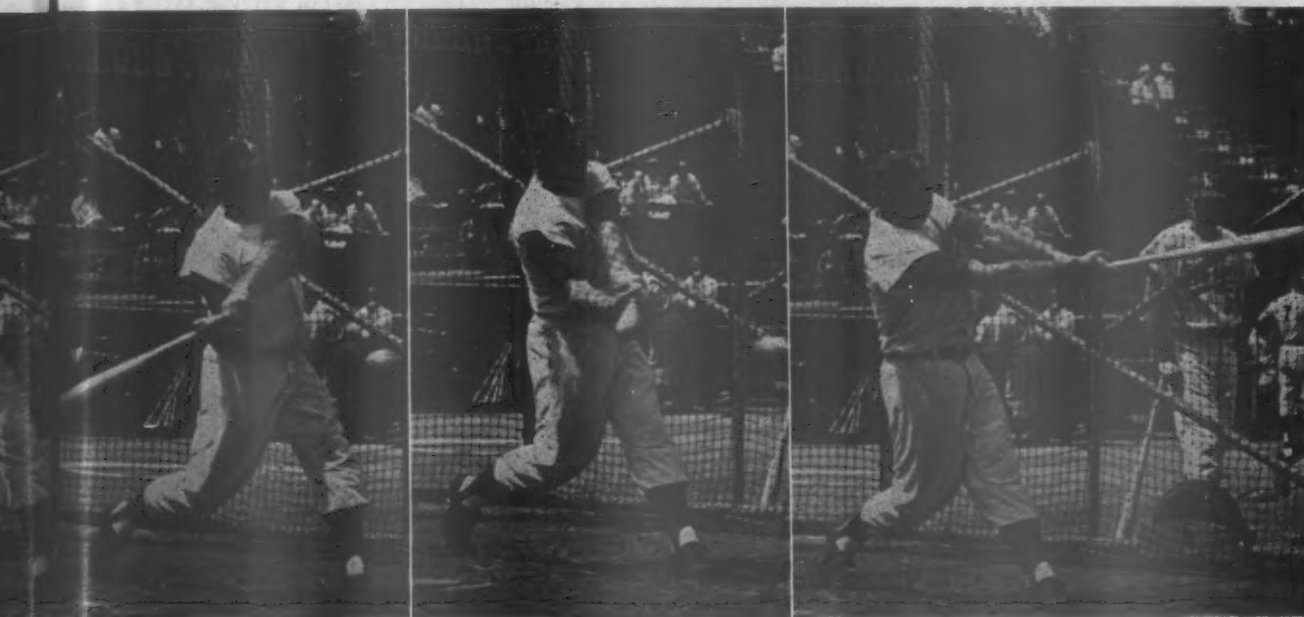


GIL HODGES. During his major league career, this powerfully built

Don Weiskopf played with Oklahoma City of the Texas League after competing at Illinois and playing service baseball in Japan. After receiving his master's degree at Illinois, he was appointed to the staff at Idaho. He directs a radio sports program and conducts numerous baseball clinics in the Pacific Northwest. We are indebted to Weiskopf for taking these excellent pictures.

right-handed slugger has hit 342 home runs, fifth best in National League

history. This slick fielding first baseman was a hitting standout in the 1959 World Series with a .391 batting average. Standing up fairly straight, Hodges is poised for the stride and has his bat up high and away from his body. Raising his front leg and with his weight on his back foot, he starts his stride. During the swing his level shoulders and hips can be seen coming around together. Upon rotating his hips, Gil's weight shifts forward, hitting off a straight front leg. His arms are in a firm line at impact and he continues on with a perfect follow-through.



SINCE time is of the essence in preparing a baseball team for the playing season we feel a list of the necessary small phases of defensive baseball is necessary.

At Ohio Wesleyan we use the guide list as a check to make sure our players are exposed to all the things expected of them when the team is on defense. We also feel that by breaking the defensive positions down a personal touch is added while the boys are learning the defensive fundamentals.

During our early practice sessions on the gymnasium floor special days are designated for a particular defensive position. The principles for the position are posted on the bulletin board and during practice on that day an attempt is made to cover all the items and explain just how we want the various techniques executed. Along with the techniques we try to instill in the players the necessity of mental alertness at all times when they are on the field.

Things for the Entire Team to Know and Do

1. Think defensive baseball when the team is on the field.
2. Hustle at all times while on defense.
3. Do everything in your power to help the defense.
4. Make up your mind to be the best defensive player on the team.
5. Know what you are going to do with the ball if it comes to you.
6. Be alert to the play situation.
7. Think every ball hit is coming to you.
8. Back up throws whenever possible.
9. Give encouragement to your teammates at all times.
10. In late innings tighten up the defense.
11. See that our team is known as a hustling ball club.

Catchers

1. They must be take-charge players, leaders, and have drive.
2. Get to know the pitchers.
3. Hide your signs.
4. Pounce on balls in front of the plate.
5. Rip off your mask and leave it at the plate.
6. Be able to shift both ways.
7. Be able to catch pop flies.
8. Obtain accuracy on all throws.
9. Block low pitches.
10. Take one step and throw.
11. Know when to cover third.
12. Tell the pitcher what to do with a bunt.
13. Study the batter and remember batters.
14. Know what to do on double steal work.
15. As a target for the pitcher, the catcher must be steady until the ball is released.
16. Back up first when it is feasible.

Pitchers

1. Pitchers must have tremendous determination.
2. They must acquire poise as soon as possible.
3. They must always have courage and a desire to

- win.
4. Self-confidence is essential in pitching.
5. They must master three pitches — the fast ball, curve ball, and the change-of-pace.
6. Control is the crux of good pitching.
7. They must be ready to field their position.
8. Never fail to cover first base on balls hit to your left.
9. Be alert to back up bases as the play develops. Do not stay on the mound.
10. Come in fast on a bunted ball.
11. Take all signs from the catcher with a foot on the rubber. Do not wander around.
12. Follow-through is necessary on all pitches.
13. Keep your eyes on the target from the start to the finish of the pitch.
14. Keep the runners close. Pick runners off whenever possible.
15. Notice the posi-

fectiveness of the defense by constant chatter.

Second Baseman

1. Field all the balls you can on your side. Call to the first baseman, *I have it*, so he will cover first.
2. On all deep hits to right field go out for the relay.
3. Become well acquainted with the short-stop.
4. Make sure you cover first when the first baseman goes in on bunts, etc.
5. Become proficient on double play footwork.
6. Have your weight on the balls of your feet and be ready to move immediately.
7. Keep the glove down low and bring it up to the ball. Do not let the ball go under.
8. En-

Check List for Defensive Baseball

By LES MICHAEL

Baseball Coach, Ohio Wesleyan University, Delaware, Ohio

tion of the batters in the batter's box and pitch accordingly.

16. Plant the front foot in the same spot on all pitches.
17. In general, try to keep the ball low rather than high.

First Baseman

1. The first baseman must be able to field ground balls.
2. He should become proficient in catching fly balls.
3. Encourage the pitchers constantly.
4. Come in fast on bunts, and always be ready.
5. Keep your weight on the balls of your feet, and be ready to move immediately.
6. Look the ball into your glove. Never drop a good thrown ball.
7. You must be accurate on throws to all bases.
8. The first baseman is the cut-off man on throws from right field and center field.
9. Learn how to throw to the pitcher covering first base.
10. Know the procedure when a runner is caught in a pickle.
11. Keep the runners close.
12. Be smooth on throws to second on double plays.
13. Be alert at all times and think the ball is coming to you.
14. Keep the bag kicked in at all times.
15. Be alert for pick-off plays, pitch-outs, etc.
16. Present a good target for all throws.
17. Know the tactical situation at all times.
18. A first baseman is expected to be a good hitter.
19. You must be able to scoop low throws into the dirt.
20. Add to the ef-

courage the pitcher.

9. Know who is covering second on steals. Never leave that base open.
10. With a runner on first, if the ball is fielded on the baseline, try to tag the runner and then throw to first.
11. Know the procedure to use in breaking up the double steal.
12. Know the procedure to use when a runner is caught in a pickle.
13. Be accurate on your throws.
14. Always think the ball is coming to you.
15. Know the tactical situation at all times.
16. Get the ball either at the top or the bottom of the bounce.
17. Eye the ball into the glove.
18. Make sure you have the ball before you attempt to throw it.
19. Back up the shortstop when he takes throws from left field or center.
20. Be ready to move right or left at a fast rate of speed.
21. Be able to go behind first and catch fly balls. Call for the ball.
22. On a double play ball hit to you close to second you may want to toss the ball with a counterclockwise motion.
23. If you are the cut-off man on a double steal, be sure you come to the right spot to pick the ball off and throw to home or third.
24. Always be a hustler on the team.

Third Baseman

1. The third baseman must be able to stop hard smashes.
2. He must be able to rush in on slow ones, scoop the ball

up, and throw to first. 3. Do not be a ball hugger. Get rid of the ball fast if speed is indicated. 4. Be accurate on your throws to first base. 5. Get in front of the batted ball. Start from the ground up with your glove. Your body will stop a bad bounce. If the ball hugs the ground, your glove is down there so the ball will not go under. 6. Be ready to pounce on every pitch. Think every ball hit is coming to you. 7. Have a flexible wrist. Let the ball ooze into your glove. It will stay in the glove and not bounce out. 8. Become proficient in handling a bunted ball. 9. Take everything you can in your position. You can move to your left and handle the ball very well. 10. In starting a double play at second, throw the ball chest high, on the glove side, to the base. 11. Be sure to call for all the fly balls you are going to take. Never be guilty of letting the ball drop in. 12. With runners on first and second, on a bunted ball you stay at third. The pitcher will cover that side of the infield. 13. With a runner on first, on a bunted ball, field the bunt, and the catcher will cover third. 14. With a runner on first, on a ball hit to the outfield, be sure to tell the shortstop whether to take it or let it come to you for the put-out of the runner at third. Sound off. 15. With a

Graduating from Ohio Wesleyan in 1940, Les Michael coached at Urbana, Ohio, High School before serving in the army. After the war, he served as athletic director at Mentor, Ohio, High School and returned to his alma mater in 1951. Michael's 1958 team went through the entire season undefeated and posted a .302 batting average.

runner on second, and a ball hit hard to you, fake a throw to first. Then throw the runner out at second, or at least fake him back to second before throwing to first. 16. With the bases loaded, start the double play by throwing to the plate. 17. Always know the tactical situation. 18. Maintain hustle and chatter. 19. Always encourage the pitcher. Let him know you are with him all the way. 20. With two out make the shortest throw for the third out. 21. Always keep the base kicked in. Every time you take the field kick it in. 22. Always have a keen desire to improve your game. Never be satisfied. 23. Provide a good target for the catcher on pick-off plays. 24. Keep the runner close if the score is close and the game is in the late innings. Do not give the opponents a chance to squeeze him home. 25. Know how to position yourself to tag out a runner coming into third. 26.

The third baseman should be a good hitter.


The Shortstop

1. He must be like a cat ready to spring when the ball is hit. 2. The shortstop must be proficient in handling all types of ground balls. 3. On hits to your right circle into the ball if it is at all possible. 4. Become proficient in catching fly balls behind third base. Call for the ball. 5. You must learn the footwork in handling the double play. 6. You and the second baseman must be organized on which one is covering second on steals. 7. Know the procedures to use in defending the double steal. 8. Long throws to first must be made overhand. 9. If you must move far to the right to field the ball, be sure to plant your right foot hard. It will act as the push-off for the throw to first. 10. On balls hit deep in left field go out as the relay man. 11. On a double play ball hit to you do not hide the ball from the second baseman. Take your glove away after you scoop the ball. 12. Always be a hustler. Encourage the pitcher at all times. 13. Learn the daylight pick-off play with the runner on second. 14. Be sure to cover third

(Continued on page 71)

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Illustration 1 — the 60 series.



Illustration 2 — the 80 series.



Illustration 3 — the 70 series.

The Multiple T for Six-Man

By THURMAN SIMMONS, JR.

Football Coach, Northern Yuma Co. Union High School, Parker, Arizona

THE multiple T offense in six-man football was designed to give a small team considerable offense and yet be kept simple enough for the boys to master thoroughly with a minimum of confusion. This article will deal primarily with the running game because most accepted passing techniques will work well from this formation.

This offense consists of three different offensive alignments, all employing a man under handling the ball. It has balanced T as shown in Illustration 1. This is our 60 series. The unbalanced T to the right where the center is on the end of the line is shown in Illustration 2 — the 80 series. An unbalanced T to the left with the center again at the end of the line is shown in Illustration 3 — our 70 series.

Graduating from New Mexico Highlands University, Thurman Simmons played on the air force (Japan) championship team of 1952. He coached six-man football for six years at Weed, New Mexico, High School and then moved to Farmington, New Mexico, High School as line coach in their eleven-man program. The pictures were taken at Farmington. This past summer Simmons moved to Parker where he is head coach at Northern Yuma Union High School.

Notice in these illustrations that the basic change in each formation is the location of the center and quarterback. The halfbacks stay in almost the same position in relation to the extremities of the line. The quarterback operates on the line of scrimmage for the quick-opening dive play and is immediately available as a downfield blocker on the sweep plays. Our halfbacks are placed a yard and a half from the line of scrimmage and directly behind the end man on the line. This positioning makes the dive hole plays fast enough to force an adjustment in the defense to stop them. When the dive holes are stopped, then the balance of the offense is ready to operate. If the defense spreads, our players go directly back to the dive holes to force it to pull in.

Quarterback Play

The best blocker on the squad is selected and then taught the ball-handling chore. Our quarterback is actually a blocking back although he handles the ball initially on all running plays. In order to maintain maximum speed to the line of scrimmage, it is necessary that he ride the center into the line of

scrimmage and operate laterally from that point until the clear pass is made. Then he cuts up the field as a blocker. He has the first key block on all sweeps; therefore, expert blocking ability and willingness to help his team at all times are important assets.

The quarterback takes the pass from center with his thumbs together and his fingers spread as wide as possible. Both of his feet should be placed on an even plane to allow him to move equally well either to the right or to the left. His hands are pressed tight against the crotch of the center, making the exchange blind and automatic. Illustration 4 shows the quarterback's hands before they go under the center. The quarterback and center just before the snap are shown in Illustration 5. Illustration 6 shows the quarterback as he receives the ball.

After he receives the ball, the quarterback's first move is forward toward the side the play is going, and is made with his foot to the play side. If the play is to the right, he rides the center into the line of scrimmage and at the same time steps to the right with his right foot. Illustration 7 shows the quarterback's first step.

Then his job is to make the clear pass quickly and surely. We believe the best pass to handle is one that has absolutely no spin. The quarterback must pitch the ball with both hands in order to execute this type of pass. The dead ball clear pass in this extremely quick offense is mandatory. These are the basic fundamentals for our quarterbacks in running situations. We will omit the passing game for the quarterback because the techniques used will not affect the balance of the offense.



Illustration 4.

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Illustration 5

Halfback Play

The halfbacks to be used in the multiple T are selected for their explosive starting speed and ability to carry out



Illustration 6

a fake. They are set a yard and a half from the line of scrimmage, and maintain their positions directly in back of the man on the end of the line in all three alignments.

We believe the stance that gives our
(Continued on Page 58)

Illustration 7



Spanjian
PASADENA

New Three-Step Method of Shot Putting

By **CARL B. MUNSON**
Track Coach, College of Wooster, Wooster, Ohio

In the case of a right-handed shot putter, the first step back is a short one with the left foot. This step will probably be about 18 inches but the length will depend to some extent on the build of the athlete.



The second step for the right-handed putter is with the right foot, and is a somewhat longer step. Notice that the foot is placed at an angle of about 45 degrees with the line of direction across the ring. This angle is important in getting the maximum effort from the leg.



This illustration shows the position in the ring for the Wooster method. Notice that the putter's knees are slightly flexed. Further experiments are being conducted on the amount of knee bend which will give the maximum power.

WHILE we do not believe that shot putters should be forced to adopt any one particular style, we do feel that most big men can do much better if they substitute two backward steps for the backward hop.

By using this method during the spring of 1959, Roger Ramseyer added a foot to his best mark for the previous season. The change in his style, in his senior year, was at his own suggestion.

After some experimenting, we settled on what we considered the best method, and in a few short weeks Ramseyer was consistently doing better than he had ever done before. If this change can be taught that quickly, much more progress can be made over two or three seasons.

This Wooster method of putting the shot starts by having the putter stand with his weight evenly distributed on both feet, and facing away from the direction in which he will make his toss.

As in the O'Brien method, the shot is held in the hand well back of the jaw and resting on the neck just back of the ear. For the right-handed athlete this means that he holds the shot back of his right ear.

Instead of balancing on one foot and then taking a hop, we teach the right-handed athlete to take a short step, about 18 inches with his left foot.

The second step, which is a longer one, is taken with the right foot. This foot is placed so that it makes a 45 degree angle away from the line of progress. At this point the left foot is moved quickly to the rear and forms an angle with the toeboard on a line through the center of the ring and along the line of the put.

The delivery, reverse, and the angle of release are basically the same as they

(Continued on page 69)

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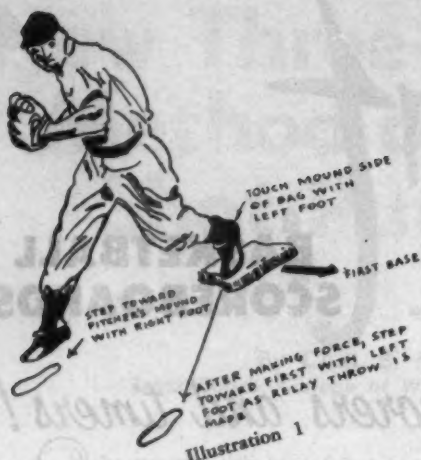


Illustration 1

extremely pertinent to the ultimate success of the keystone combo in fulfilling their role as the fulcrum of the team.

The entire infield should always be anticipating the possibility of making the force at second, pivoting, and relaying the ball to first base.

In making double plays, the second baseman will usually be moving away from first base when he is covering second as the pivot man. Because of this movement from first, he will have to be set at second to receive the throw for the force, and then pivot to avoid any sliding base-runner while relaying the ball to first.

In performing this important task, the second baseman will have to pivot in different ways in order to be prepared to avoid base-runners who are sliding inside or outside, and to get the ball away as fast and as accurately as possible.

Illustration 1 shows the second baseman avoiding a runner who is sliding outside.

(Continued on page 55)

The Keystone Combo

By **SIDNEY SHULMAN**
Baseball Coach, Eli Whitney Vocational High School, Brooklyn, New York

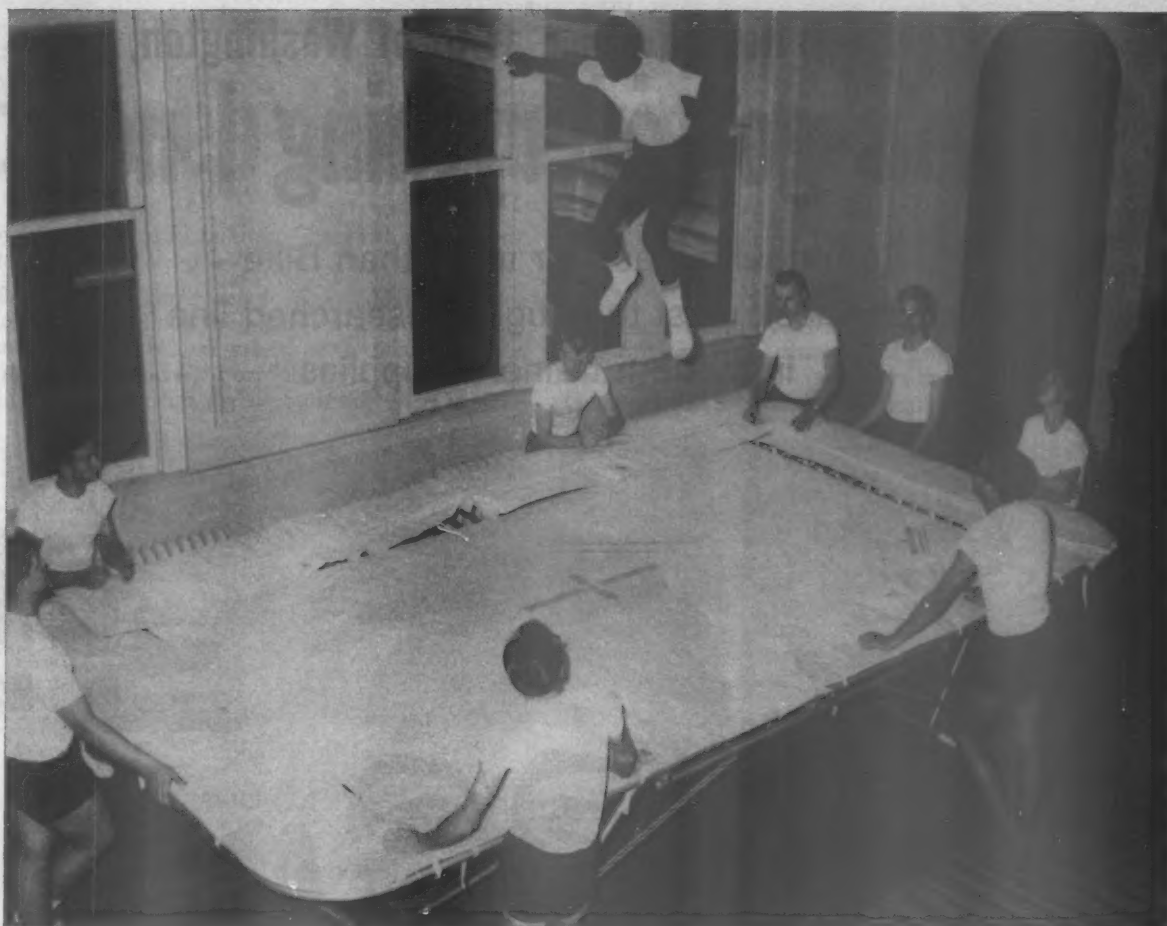
A coach is to a team as an architect is to a building, and in both cases they rest upon the keystone. This statement might be used in analyzing the relationship of a baseball coach to his team by comparing his role to that of an architect's in planning a building.

The common denominator, the keystone, can be used to further crystallize their respective roles. To the architect the keystone represents the vital foundation points in a building which offer basic support for the entire building. Just as the architect must surely take extreme care in selecting the keystone of a building; the baseball coach must also be sure when he is selecting the keystone of his baseball team, the shortstop and the second baseman must work as a team.

The shortstop and the second baseman must work as a team combination in direct proportion to the extent that these two players work together harmoniously. Innate ability tempered by constant practice are

Illustration 2





126 Blind Students and a Trampoline*

Rebound-tumbling has proven to be a safe, thrilling and rewarding experience to the 126 blind students at the Washington State School for the Blind in Vancouver, Washington. "Since the purchase of our Nissen Trampoline 3 years ago, our attitude toward this type of equipment has certainly been changed," says Robert Mealey, physical education instructor. "It's brought new life and exhilarating enthusiasm to our entire physical education program."

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is only one of more than 10 blind schools and many more handicapped children's schools that safely use Nissen Trampolines to help in the physical development of their students. Although over 9,000 Nissen Trampolines have been sold to schools and colleges, we are especially proud of the ones used in these schools.

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NO two batters ever bat exactly the same way, nor do any two batters have the same form. However, there are definite things which all successful batters do, so we will describe the steps which are required to complete one correct swing of the bat.

Good form in a batter includes: 1. a backswing, 2. start of the backswing, 3. the pivot, 4. finish of the backswing, 5. the hitting swing, and 6. the turning of the hips.

The Backswing. A backswing includes the start of the backswing, the pivot, and the finish of the backswing.

hand must be alive. A great deal of the success of a batter depends on how quickly his fingers respond to his central nervous system.

As the bat is pushed back, the weight on the batter's front leg should be transferred to his back leg, which now becomes the pivot leg. His front foot should rise slightly above ground level, and his toes should point inward. Thus he is able to turn his hips inward ever so slightly. There is a rotation effect toward the plate, but let us emphasize it is so slight that unless one is looking directly at the batter's hips, and is

glued to the ball. His front foot should go forward anywhere from 2 to 14 inches, varying with each batter. The batter's weight should be transferred slowly from his back foot to his front foot. As his front foot goes forward, and his weight goes forward, the bat should be pushed back lightly in order to maintain balance. Assuming that the ball comes over the plate belt-high, the batter, who now has his front leg almost firmly entrenched in the ground, should lower his hands, arms, and bat to the height of the pitch. Then his front arm should start the forward hitting swing by pulling the bat forward. His wrists should still be cocked, and his eyes focused on the ball. The batter should start his swing gradually, accelerating rapidly, until the bat reaches its highest acceleration just as it makes contact with the ball. At this point his weight should be evenly distributed on both legs, and his elbows should be away from his body. The bat should be parallel to the ground. The batter's head and eyes should be focused directly on the ball, and his front shoulder should be almost pointing to the ball. At this point his wrists should uncock with lightning speed. The batter's back wrist should make a complete roll over his front wrist.

The bat should be allowed to continue in the direction of its momentum, so that it makes almost a complete revolution. Now the batter's arms should be in the opposite position from the one assumed at the start of the hitting swing. His back arm should be almost straight, and his front arm should be flexed with that elbow pointing straight down to the ground.

At the impact of the bat and the ball the batter's front shoulder should have been turned into the impact. Immediately after contact, his front shoulder should be pulled away, in order to allow his back shoulder more freedom to make a turn. This turning of the shoulders should be executed quickly, enabling the batter to get a free and powerful swing into the ball.

The Turning of the Hips. As the bat makes contact with the ball, the batter's hips, which were cocked, should start to unwind, thus giving him more body freedom and a much better follow-through.

The hips are the secret of good hitting. If a batter would practice rotating his hips during the backswing and the hitting swing, he would feel the difference in the added freedom of movement, the added body power, and the more comfortable follow-through.

After the swing, the batter's legs should be far apart, with his back heel in the air. His body should be turned

(Continued on page 47)

Batting Successfully

By PHILIP L. PHILIP
Millbury, Massachusetts, Public Schools

The Start of the Backswing. When he is in the correct stance, the batter's feet should be spread apart so that he can balance himself easily. His weight should be evenly distributed on both legs. The bat should be held behind his body with his elbows away from his body, so that he may have great freedom of movement. His front arm should be practically straight, with just a slight bend in the elbow. The rear elbow should be away from his body and pointing downward. His wrists should be cocked, and his hands held closely together. The bat should be held at shoulder height, and the bat barrel should be at a 90° angle with the rear shoulder to assure the batter that the bat is cocked. His head should be facing directly toward the pitcher, and kept as motionless as possible. The batter's hips should be relaxed and almost facing the pitcher. There should be a slight flexion in his knees and his weight should be centered on the balls of his feet. Now the batter is in his assumed stance. The bat should be held firmly but not tightly.

As soon as the pitcher gets on the rubber, the batter starts his backswing. He should push the bat back in a straight line, parallel to the previous position. The distance it is pushed back should be very small, varying from one to four or five inches. A batter's front hand should initiate this movement. The fingers of his front

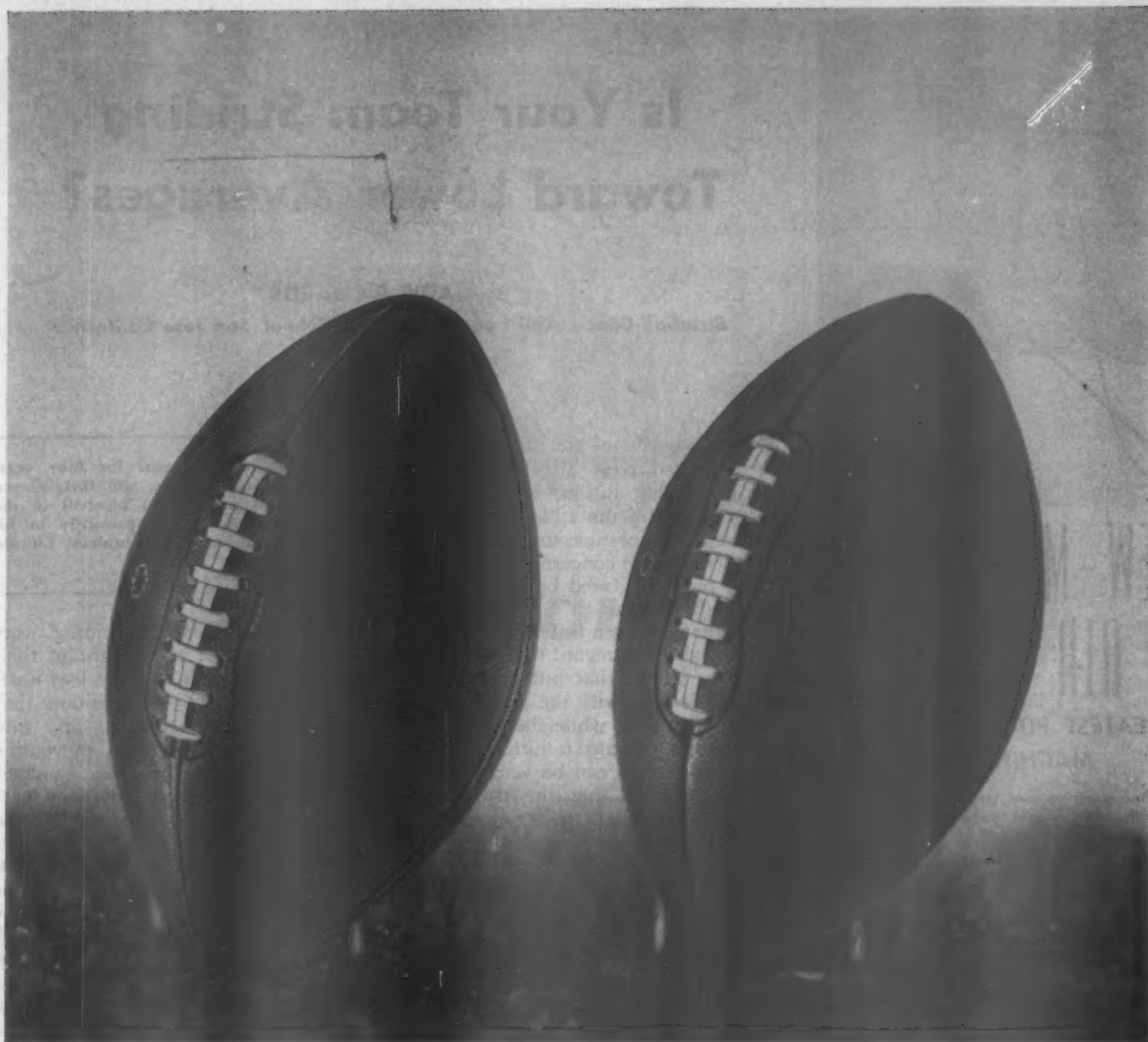
cognizant of their movement, this movement would not be noticed. A batter can feel hip movement more easily than he can see it.

The Pivot. The weight from the batter's front foot should be transferred to his back foot, thus making the back foot the pivot foot. Almost all of the batter's weight should be concentrated on this point.

The Finish of the Backswing. Now the batter is in position to start his forward swing. Almost all of his weight should be on his back foot, with just enough on his front foot to balance himself. His hips should be cocked, in position to allow a free swing, and to give more power to the swing. The bat should be held high because a batter should be ready to hit a high fast ball. Any other pitch will be lower and even if the batter does not hit the ball squarely, he will top it, which still gives him a better chance for a base hit than a pop fly would. If the batter were to hold his bat at a lower level and uppercut at a high pitch, a pop fly would be the result.

When the bat is back and held at shoulder height, the batter's eyes glued on the pitcher, and his wrists cocked, then he is ready for the pitch.

The Hitting Swing. The batter should start his forward hitting swing when the ball leaves the pitcher's hand. His head should be held as motionless as possible, and his eyes should be



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Is Your Team Striding Toward Lower Averages?

By **JACK RICHARDS**

Baseball Coach, Abraham Lincoln High School, San Jose California

THE majority of the men who are associated with athletic endeavor will agree that hitting is one of the most difficult of the athletic skills. Yet it is next to impossible to find detailed, consistent advice concerning an answer to the problems faced by many hitters season after season.

For many years a difference of opinion has existed in regard to hitting. One group maintains that hitting is an art and one is born with the ability to become truly great, while the other feels that there is a science to hitting and the actual mechanics can be learned. It is generally agreed that the truly great hitters possess one necessary element — split-second timing. Without this all-important element of timing (whether God-given or acquired through years of experience) a baseball player is doomed to travel a bumpy road to success.

It is true that hitting styles differ greatly but during the forward swing of the bat the mechanics are basically the same. Of course, these mechanics may differ with the variations in pitches — the high, low, inside, and outside pitches determine the plane and the path of the arc. Basically, regardless of whether the arms are held in close or away from the body, the stance is open or closed, the stride is six or sixteen inches, the bat is held straight up and down or parallel to the ground, etc., the fact is that after the front foot is planted, the movements are practically identical.

Only in recent years has it been discovered that a player strides to hit, not strides and hits. The bat does not begin its forward swing until the foot nearer the pitcher is planted and the leg nearer the pitcher has ceased its lateral movement. In plain words, this simply means that the stride does little more than place a hitter in position to hit. It is not the lateral movement of his leg or hips that provides the power, but rather it is a rotation of the hips around their axis which generates the force necessary in hitting.

In order for equilibrium to exist, the center of gravity of a body must fall

Jack Richards competed for four years at San Jose State College and then played one season of professional baseball in the California League. He is presently in his third year of coaching at Abraham Lincoln High School.

within its base. When striding, very often batters shift the weight of their bodies to a position over the foot nearer the pitcher. In this position they have committed themselves and find their hips are locked, thus preventing the proper rotation of the shoulders and hips. Rather than remaining over the center of the base of support, the body's axis has shifted forward over the front foot. When the skill is executed properly, a step rather than a stride precedes the swing. By stepping, the leg nearer the pitcher moves forward, but the body weight is held back with the bat until the power is unleashed with the forward swing of the bat. Thus maximum hip and shoulder rotation is assured and the body's axis is directly over the base of support.

This principle is often confusing to young baseball players who are over-anxious and want to stride out and meet the ball.

The immortal Ty Cobb once said, *You hit with your feet.* If this statement is true, and if the feet have the ability to adjust themselves to the speed and position of the pitch, then it stands to reason that a player must also miss with his feet if the skill is executed improperly. Therefore, if we assume that correct usage of the stride places a player in position to hit, then incorrect usage of the stride must destroy the base of support upon which he hits and account for much of the failure in hitting.

If the speed or flight of the pitch is misjudged and the batter is fooled, then one of three things may occur: he may overcome this misjudgment and compensate with his forearms by wristing the ball; he may stride too far, thus locking his hips and causing his body

(Concluded on page 44)

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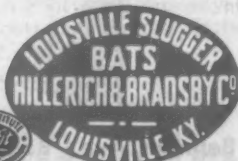
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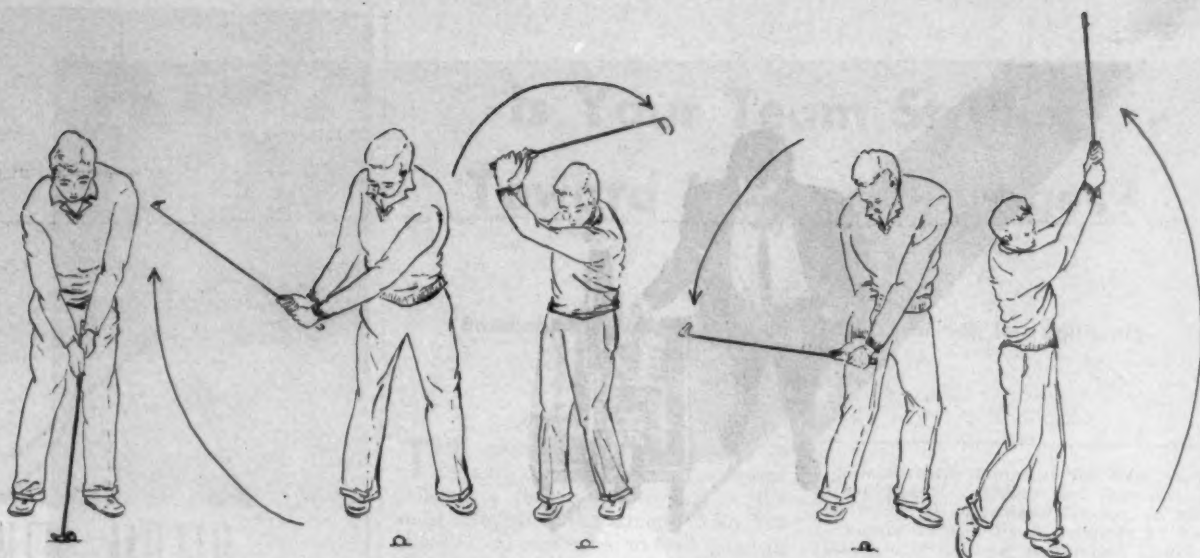
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Golf Exercises Are Necessary

By CONRAD H. REHLING

Golf Coach, University of Florida, Gainesville, Florida

GENERALLY speaking, superior strength is not necessary in order for an individual to become a good golfer. However, he must have enough strength to hold the club firmly and give impetus to the speed of the club head with his hands.

Golf fundamentals cannot be changed. The difference lies in the manner in which one instructor teaches them and another man applies them. Dur-

ing the past few years there has been a trend to standardize golf instruction, but it will never be possible to standardize the play because each golfer misapplies his power in different ways. The tonus of muscles, tensions, breathing, fatigue, and emotions are the uncontrollable factors. The fact of the matter is that we are dealing with human beings and physical limitations, and not with machines.

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It is essential for a person to develop a keen kinesthetic sense in order to acquire skill in any neuromuscular activity. The sensation which is produced through the muscles, joints, nerves, and nervous system and is felt throughout the body with rhythmical sequence during the coordinated action is called the kinesthetic sensation. This feeling is

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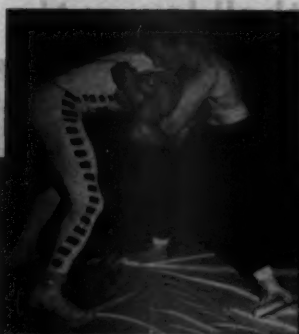


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necessary for smooth, rhythmic movement if skill is to be acquired in any activity where coordination of different muscle groups is required. In the last analysis, the individual will learn by doing.

The Teacher and Golf Exercises

It is important that the student be actively engaged in motion or, more specifically, learning golf skills at all times. Many times facilities will not permit as much action as the instructor desires; therefore, he must devise methods which will contribute to the student's learning of motor skills. In order to assist the student, it has been suggested by many golfing authorities that certain exercises may be helpful.

There is general agreement that strength is a factor in playing golf and an effort must be made to develop the musculature of the body which is needed to play competently. Jimmy Nichols, the famous one-armed golfer, considers lack of strength in the left arm, wrist, and fingers one of the greatest weak-

Following graduation from Taylor University, Conrad Rehling served in the navy. After the war, he received his master's degree from Springfield College, and has spent all of his coaching career at the University of Florida. Rehling has written numerous articles on the game as well as the book, "Golf for the Physical Education Teacher and Coach," published by Wm. C. Brown Co.

nesses noticed in most beginning golfers. Because Nichols hits the ball with his left arm backhanded, his strokes show what could be accomplished in the case of a normal person if his left arm, wrist, and hand were strengthened. How can this strengthening be done? The common exercise of swinging the club with the left arm is an excellent means to use in developing the full swing. Since the majority of people are right-handed, they have developed strength in their right arms, wrists, and hands to a greater degree than in their left arms.

One difficulty common to beginning golfers is not how much strength they have, but how to control and develop their strength in order to play more capably. A person may be very strong but not have the ability to produce the flexibility required in hitting the ball. It is necessary to know what muscles and groups of muscles are needed to produce the flexibility necessary in hitting the ball.

It is a physical fact that the force of a golf shot depends on the momentum of the club head. If all the body seg-

(Continued on page 72)

AT TULANE



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Techniques of Six Champion Vaulters

By **BILL PERRIN**
Track Coach, Alton, Illinois, High School

seconds the slowest, with the average near 10.2 seconds for the 100-yard dash.

The comparison of improvements and best marks made by these vaulters should be of special interest. Table 2 gives their best mark in high school, college, and amateur competition, and the year in which the vault was made.

Performance Records. In studying the progressive performance records, it was found that the best heights were generally attained after college competition. The records made by Warmerdam and Richards indicated that the best marks were attained six to ten years after college competition. This

THIS article is an analysis and comparison of the various techniques of six champion pole vaulters. The information is arranged in tables and explanations in a manner than can be interpreted and utilized by coaches and vaulters.

In order to analyze and compare these vaulters, a study was made of their physical characteristics such as height, weight, strength, and body build. Other things taken into consideration were athletic ability, background, experience, and vaulting techniques. The following factors and phases of the pole vault were considered: the type of pole used, the placement of standards, the pole carry, the approach, the pole plant, the take-off, the swing and pull, the push-off, and clearance. Individual training methods used by each vaulter were also taken into consideration.

Height, weight, speed, and experience are important factors, in pole vaulting. Table 1 shows these statistics regarding the six vaulters.

Physical Characteristics. It will be noticed from this data that the height of the vaulters is above average, with three of them over six feet and only one under six feet tall. The average weight is 168 pounds. However, this is not a good criterion of the weight of top-flight vaulters because of the exceptional weight of Laz (185) and Bragg (198).

Table 2
PROGRESSIVE PERFORMANCE RECORDS OF SIX CHAMPION VAULTERS

Name	High School	College	Amateur
Bragg	1953 - 13'6"	1956 - 15'5½"	1959 - 15'9½"
Brewer	1957 - 15'¼"	1958 - 14'11¾"	
Gutowski	1953 - 12'3½"	1958 - 15'9¾"	1959 - 15'4"
Laz	1947 - 12'3"	1951 - 15'1¾"	1956 - 15'3"
Richards	1943 - 12'0"	1947 - 14'3¼"	1957 - 15'6½"
Warmerdam	1932 - 12'0"	1937 - 14'7 5/8"	1943 - 15'8½"

The data shown in Table 1 would indicate that experience is an important factor in vaulting success as twelve is the average age these men started

improvement can probably be attributed to the added experience and maturity of the vaulter.

All of the 15 foot vaulters reached

Table 3
VAULTERS' BEST MARKS IN OTHER TRACK EVENTS

Name	High Jump	Broad Jump	Shot Put	Discus	440 Yd. Dash	100 Yd. Dash	220 Yd. Dash
Bragg	6'0"	21'9"	48'6"	145'	50.0	9.9	
Brewer	5'9"	19'0"	40'0"	120'	54.0	10.9	23.9
Gutowski	6'2"	24'4"	40'0"	130'		9.7	
Laz	6'1"	23'10"	42'0"	132'	54.6	10.0	23.0
Richards	6'3"	23'6"	46'0"	146'	51.0	10.0	23.0
Warmerdam	5'11"				54.0	10.5	23.0

vaulting. Better than average running speed seems to be common with these champion vaulters. Gutowski's 9.7 seconds is the fastest and Brewer's 10.9

12 feet or more in high school, the most outstanding vaults being Brewer's 15 feet and Bragg's 13 feet, 6 inches. The four others vaulted between 12 and 12 feet, 4 inches in high school. Although Gutowski was far behind the marks set by Brewer and Bragg in high school, he holds the present college record with a mark of 15 feet, 9¾ inches. The achievements of these athletes would tend to support the argument that 12 foot vaulters in high school have as much chance to clear 15 feet in later years as do the 13 and 14 foot high school vaulters.

Pole vaulters are usually versatile athletes and do well in most sport activities. Table 3 shows the various

Table 1
SOME VITAL STATISTICS ON VAULTERS

Name	Best Vault	Height	Weight	Age Began Vaulting	Best 100-Yard Dash Time
Bragg	15'9½"	6'3"	198	14	9.9
Brewer	15'¼"	6'1¼"	155	12	10.9
Gutowski	15'9¾"	6'0"	145	12	9.7
Laz	15'3"	6'2"	185	6	10.0
Richards	15'6½"	5'10"	165	12	10.0
Warmerdam	15'8½"	6'0"	165	14	10.5



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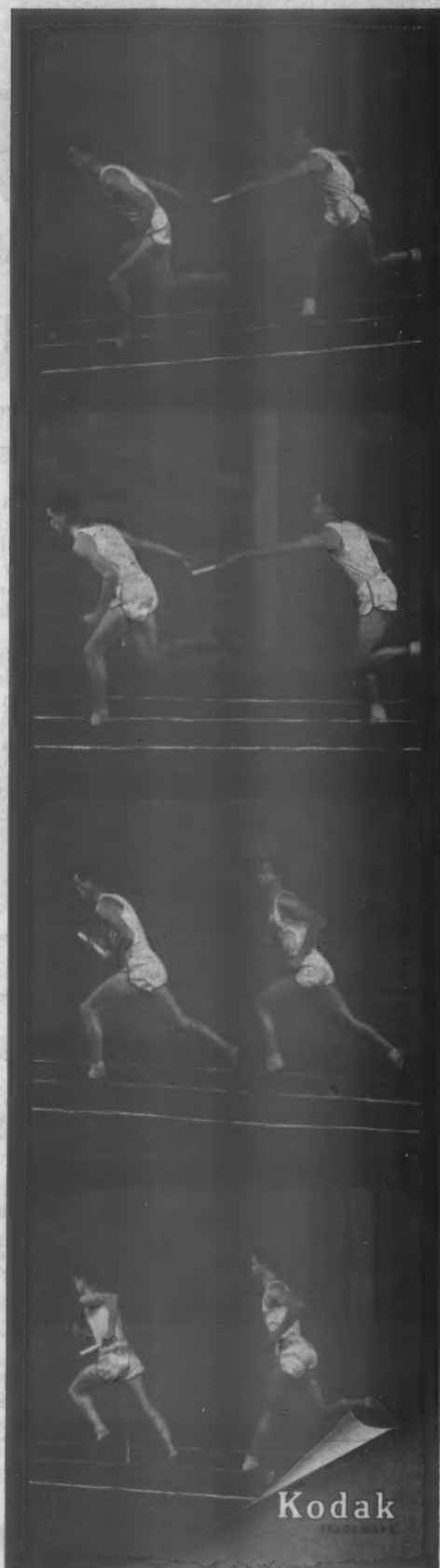


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distances and times the six vaulters accomplished in other track and field events.

Versatility of Vaulters. In examining the various track and field marks reached by the group, it can be assumed that they all possess good spring in their legs as indicated by their marks in the high jump and broad jump. The distances attained in the shot put and discus throw show that they have unusual strength for their body weight. The times attained in the sprints show they have average or better speed and endurance. Richards, Laz, and Bragg were outstanding in football and basketball in high school, while Warmerdam and Gutowski were basketball players, and Brewer played high school football.

There seems to be a definite athletic versatility in this group; they seem to be all-around performers in track and do well in most sports which require coordination. It could be said that a vaulter must have the speed of a sprinter, strength of a weight man, endurance of a distance man, and the body control of a gymnast.

The pole is the vaulter's most important piece of equipment. Care should be exercised in the selection of a pole. Table 4 states the type and length of the pole used by the six vaulters being studied.

The Vaulting Pole. The type of pole preferred by Richards, Gutowski, and Bragg was the aluminum alloy with an approximate length of 16 feet. These newer poles rarely weighed over six pounds. Laz preferred the steel pole and Brewer used a glass pole which is relatively new on the market.

In selecting the best pole, there are many factors to be considered such as height, weight, and top hand-hold of the vaulter. At present the most consistent pole as far as characteristics are concerned is the aluminum alloy which has been used to clear 15 feet more than any other type.

The type of pole carry used is important in championship vaulting. Table 5 compares the methods employed by the vaulters in this study.

The Pole Carry. In general, there are three types of pole carries, the high,

Table 5
CHAMPIONSHIP METHODS OF POLE CARRY AND HAND HOLD

Name	Type of Pole Carry	Body-Pole Relationship	Distance of Hand Spread
Bragg	Medium-Low	Slightly across body	3'
Brewer	Medium-Low	Slightly across body	3'
Gutowski	Low	Across body	3 - 4'
Laz	Horizontal	Across body	3 1/2'
Richards	Low, near Horizontal	Down runway slightly across body	3'
Warmerdam	Medium-Low Horizontal	Slightly across body	3 - 4'

medium, and low. In the high carry, the tip of the pole is pointed up and above the head of the vaulter making it easier to carry. Usually, this position is responsible for a poor, jerky type of pole plant. There is very little difference in the medium and low carry, the difference being that the point of the pole is at eye level during the medium carry and near horizontal in the low carry. Speed is better with the medium carry, but again there seems to be some trouble in executing a smooth pole plant. The medium-low or low pole carry is preferred by all the

ting an effective underhand pole plant and tends to eliminate unnecessary movements which often cause tenseness in the vaulters who use the other types of pole carry.

Most of the vaulters studied carried the pole across their bodies to some degree. It is usually much easier to keep the shoulders squared toward the standards if the vaulter points the tip of the pole slightly to the left of the runway. Regardless of the pole carry used, the pole should be pointed straight ahead as the vaulter nears the pole plant.

Table 6
TOP VAULTERS AND THE COMPARISON OF DISTANCE, CHECK MARKS, AND SPEED OF APPROACH

Name	Length of Run	Number of Check Marks	Speed at Take-Off
Bragg	145'	1 at 130'	9/10
Brewer	120'	2 at 75' - 110'	9/10
Gutowski	145'	1 at start	9/10
Laz	150'	1 at 88'	9/10
Richards	150'	1 at 96'	9/10
Warmerdam	140'		9/10

vaulters in this group, probably because this type of vault requires only a slight movement to lower the pole into the vaulting box. This type of carry is also more conducive to get-

The hand spread on the pole during the approach is approximately three feet. A hand spread of not less than two feet and not more than three and one-half feet is recommended, depending on the size of the vaulter. If his hands are too close, the pole's weight tends to tense the vaulter. When the hands are too far apart, a proper hand shift becomes very difficult.

The speed and length of the run have always been a controversial matter among many coaches and athletes. Table 6 shows the speed, length of run, and number of check marks used by the athletes being studied.

The Run. The length of the run
(Continued on page 64)

Table 4
TYPE AND LENGTH OF POLE USED BY TOP VAULTERS

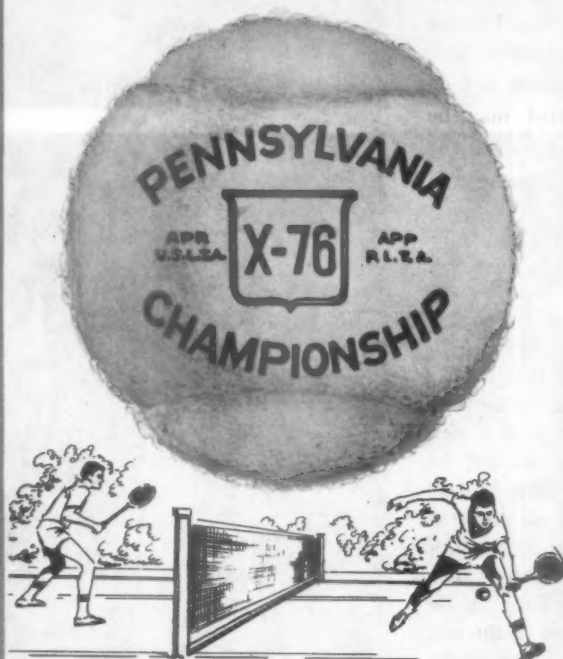
Name	Type of Pole	Length of Pole
Bragg	Alloy	16'
Brewer	Glass	16'
Gutowski	Alloy	16'
Laz	Steel	16'
Richards	Alloy	16'
Warmerdam	Bamboo	16'

Pennsylvania

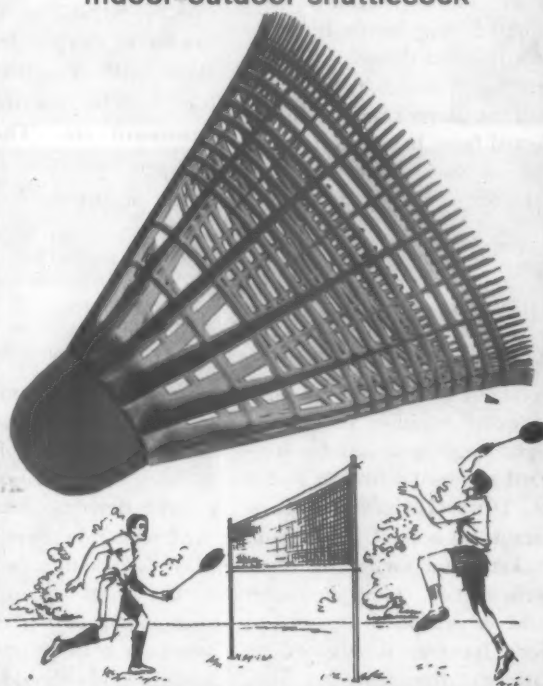
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BADMINTON STROKES

Demonstrated by VANCE SMITH

Captions by MURNEY M. LAZIER,

Evanston, Ill., Twp. High School

THE FOREHAND CLEAR

The forehand clear, the smash, and the drop should appear exactly alike at the inception of the shot. A player's body should be positioned well back so that it may move into the shot. The action is a throwing motion of the arm up and into the shuttlecock. Then the player's weight should be transferred from balanced, to rear, to forward as the racket face goes through the arc of its swing. On the

clear shot the bird should be hit at a point about even with the player's lead foot because the racket face is still moving in an upward arc. On the smash shot the bird should be hit about two feet in front of the player's lead foot because the racket is in a downward arc. The bird may be dropped by killing the action as the racket begins the forward swing.

THE BACKHAND CLEAR

The player should swing his hips from a parallel position to the net into a right angle position by stepping toward the bird with the racket hand foot. His racket arm should be brought across his body with the palm of the racket hand facing the floor and his wrist cocked. Then the racket face should be whipped forward as the player's forearm is snapped to form a straight line with his arm. The shuttlecock should be struck at

a point well in front of the player's lead foot so that it will coincide with the full extension of his arm at this point. The shuttlecock should be cleared deep to the baseline and in the backhand corner. On all shots the player's eyes must be kept on the bird to the point of impact. After each shot return, the player's hips should assume a parallel position to the net, and his body should be balanced for the return.

THE SERVE

In the serve the racket must be below the level of the player's hips with a declining angle from his wrist to the racket face. An open stance should be taken about two feet from the front service line and one foot from the center line. The racket side of the player's body should be kept free by advancing the opposite foot slightly. His hips should be kept close to parallel with the net. The

shuttlecock should be dropped about six inches in front of the player's lead foot and away from his body. This drop is independent of the action of the racket hand. The shuttlecock may be positioned in the service court by rotating the wrist as it snaps to contact the bird. Then the shuttlecock should just clear the net and land close to the front service line.





IC RNAL FEATURE

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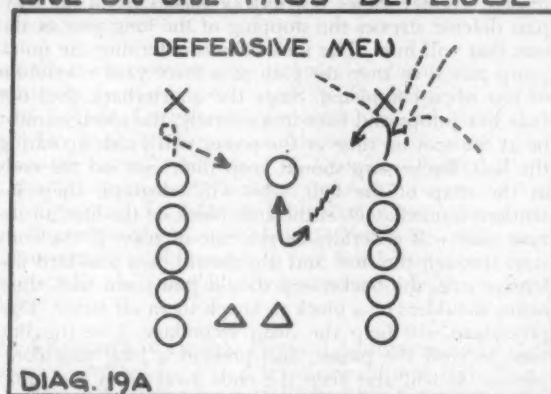
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NOTEBOOK OF DEFENSIVE FOOTBALL DRILLS

One-on-One

THE first pass defense drill (Diagram 19A) is the one-on-one. Two backs should be placed up front as pass defenders. Line up the ends and other backs in two lines about six yards to each side of the centers. The players in these lines alternate in going out for the pass, and exchange lines after each pass attempt. It is best to have one receiver go out at a time. In this way, the quarterback or passer is allowed to concentrate on the receiver and throw his pass as soon as the latter is coming out of his fake. This method places more pressure on the defender. The coach should not become discouraged if the defenders cannot break up the passes. In this drill, the passer is not being rushed and the receiver is in no way harassed. If the defender is able to stay close to his man, he is doing well under the circumstances.

ONE-ON-ONE PASS DEFENSE



Keep the defenders on defense for at least ten passes before replacing them with other backs. It is advisable to keep them on defense for more than ten passes; however, time is a factor and a limit must be set to assure pass defense practice for the other backs.

Man-for-Man

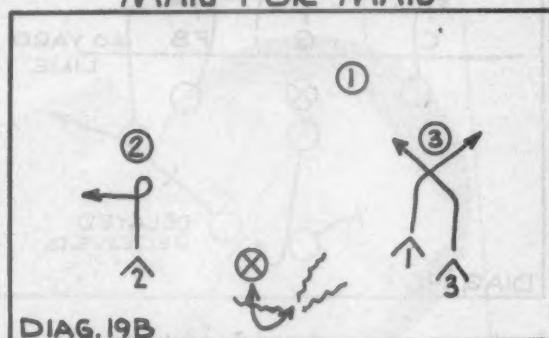
The man-for-man drill (Diagram 19B) calls for three defenders with two ends, a back, a quarterback, and center on offense. The back may flank on either side or play from a regular backfield position thus setting up a flare possibility. The safety man on defense is assigned to the strong-side end. The strong-side halfback takes the flanker or back in regular offensive position. The weak-side halfback is responsible for guarding the weak-side end. Again, there is no rushing of the passer; however, the coach can place a time limit on the passer in getting rid of his pass. This time limit forces the receivers to clear their defenders as quickly as possible or the passer will have to forfeit the throw. The coach can allow five seconds and then blow his whistle.

In this drill, the offensive men should huddle and the quarterback should give each man a pass route to follow. These lanes should be mixed in order to give the

PASS DEFENSE DRILLS 19

defenders a good workout. Defenders should be exchanged at the coach's discretion. Varsity players should be given more opportunity on defense than the reserves.

MAN-FOR-MAN



Semi-Zone Man-for-Man

This drill can also be changed from a man-for-man to a semi-zone man-for-man. Looking at Diagram 19B again, the defensive responsibilities would be adjusted according to the flanker side of the offense. The safety man and the strong-side halfback would play a zone defense. In the man-for-man defense, the safety man is responsible for the strong-side end and the halfback for the flanker. In the semi-zone, the responsibility is no longer assigned to a particular man but rather to the first player who enters his designated area. Thus, if the end and the flanker were to criss-cross, the safety man and halfback would simply switch men taking the one penetrating their area. The weak-side halfback would still play the weak-side end man-for-man.

Zone Pass Drill

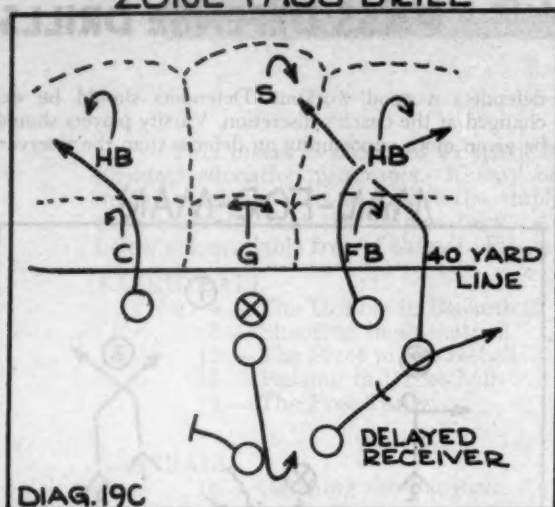
If the coach is an advocate of the zone defense, a minimum of fifteen minutes twice a week should be spent on the zone pass drill (Diagram 19C). The drill does not require linemen, thus permitting them to spend the fifteen minutes on special skills of their own. Occasionally, linemen should be used to gain the experience of forming the pass pocket while the defensive line goes through the motions of rushing the passer.

Space the backers-up on one of the yard markers. Have the offensive center and ends line up two to three yards from this line. This system should provide proper spacing for the backers-up. A full backfield should be used so that the backers-up receive experience in covering flare and delayed passes.

Offensive pass patterns can be made up in the huddle, emphasizing variety, flooding, and deep hit or miss. The backers-up should be aware of the short jump pass on every play. All of the defensive men should be taught to drop from three to seven yards as soon as they see the quarterback fade to pass. The backers-up should be urged

and directed to fade with their arms raised much as a basketball player does in a zone defense. Thus the passer is forced to raise the arc of his throw and will often overthrow. All defenders should fade while watch-

ZONE PASS DRILL



ing the men in their area and the passer as well. As soon as the ball leaves the passer's hands, all defenders forget their areas, except the one concerned, and play the ball. In order to check on whether or not the defensive men are following orders and playing the ball, the coach should instruct them to stop in their tracks whenever they hear the whistle. Then he should check on each defender and make his corrections and admonitions. Laxity should not be allowed because it leads to carelessness, and the result will be costly in a game. Once the season starts, this drill should be used against the opponents' pass patterns.

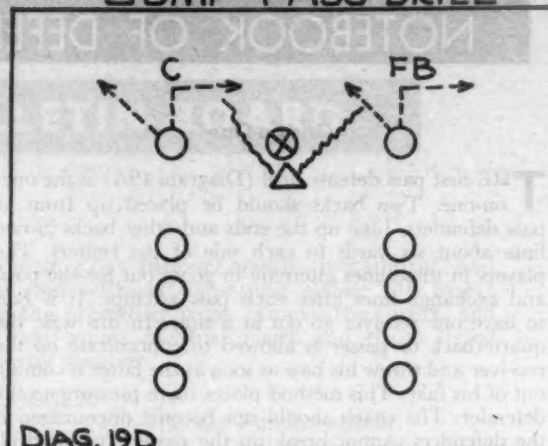
Jump Pass Drill

Using a center, quarterback, and two ends against the fullback and defensive center, the jump pass drill

20 FIVE-MAN SCRIMMAGE

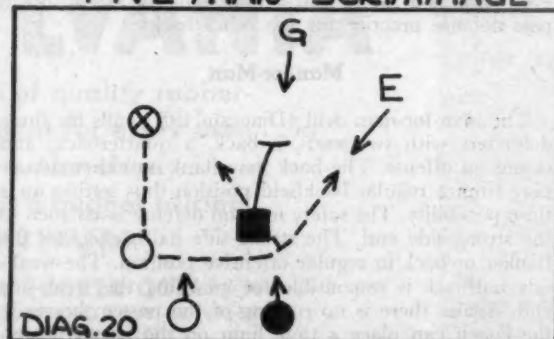
The five-man scrimmage drill (Diagram 20) should be the first live offensive-defensive contact work of the season. Primarily, this is a pre-season drill which gives the coach his first definite all-around picture of aggressive tackling, blocking, and ball running. Use of this drill will break the monotony of the conditioning grind. Two defensive players are placed against one blocker which should give one man a chance to tackle and one player defensive work against a blocker. Stress is also placed on the runner who has no protection against one tackler except his own running and faking ability. He must be able to follow his blocker and break to advantage. The tacklers are urged to hit and hit hard.

JUMP PASS DRILL



(Diagram 19D) can be used to teach reaction on the part of the defenders. There is a defensive theory concerning the jump quickie pass. Many coaches believe this pass cannot be defended without hurting the overall defensive strategy. Since few quickie passes go all the way, pass defense stresses the stopping of the long pass or the one that will hurt. The idea behind defending the quick jump pass is to keep the gain at a three yard maximum or less when completed. Since the quarterback does not fade but jumps and fires immediately, the receiver must be at the spot on time or the passer will finish up eating the ball. Backers-up should keep their eyes on the ends at the snap of the ball, who will telegraph their intentions immediately. If the ends block on the line, a running play will generally be the rule of play. If the ends start through the line, and this should be a standard defensive rule, the backers-up should jam them with their arms, shoulders or a block to knock them off stride. This procedure will help the deep secondary, give the line time to rush the passer, and prevent a long pass completion. It will also keep the ends away from the jump pass spot. Should the ends get inside or outside as shown in Diagram 19D, then hit them and try to contain the gain to three yards or less.

FIVE-MAN SCRIMMAGE



Prepared as a feature of **ATHLETIC JOURNAL**, Sept. 1959 — June 1960
By George A. Katchmer, Football Coach, Millersville, Penna., State College

NEW BOOKS

Spectator Control at Interscholastic Basketball Games, by Glenn C. Leach. Published by Sport Shelf, P. O. Box 634, New Rochelle, N. Y. Thirty-two pages. Publication date Dec. 3. Received for review Dec. 17. Price \$1.00.

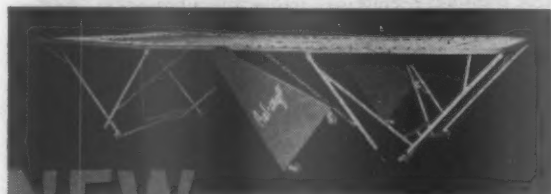
Glenn Leach, the assistant basketball coach at Rider College, recently sent a questionnaire to the 202 public high schools which are members of the New Jersey State Interscholastic Athletic Association and received replies from 73.8 per cent. The questionnaires showed that officiating, overcrowded conditions, inflamed rivalries, and closeness of the score were ranked in that order as the causes of disturbances. Then the author enumerates a number of recommendations. He concludes by presenting a suggested program for the pep rally and a sample sportsmanship code.

Instructional Course Lectures of the American Academy of Orthopaedic Surgeons. Edited by Fred C. Reynolds. Published by C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, Mo. Three hundred and thirty-five pages. Publication date Nov. 3. Received for review Dec. 7. Price \$16.00.

Among the many excellent and technical discussions in this beautifully prepared book is one by Dr. Donald B. Slocum of Eugene, Oregon on "Prevention of Athletic Injuries." Dr. Bruce J. Brewer of Milwaukee discusses "Injuries to the Knee," while Dr. T. B. Quigley of Boston handles the "Diagnosis and Treatment of Ankle Injuries Sustained in Sports." Dr. Marcus J. Stewart of Memphis discusses "Rehabilitation in Athletics." Naturally, this book contains many other lectures but we listed only those appearing under the heading "Symposium on Injuries to Athletes."

Completed Research in Health, Physical Education, and Recreation. Compiled by Alfred W. Hubbard and Raymond A. Weiss. Published by AAHPER, 1201 Sixteenth St., N. W., Washington 6, D. C. Sixty pages. Publication date Nov. Received for review Dec. 6. Price \$1.50.

This booklet lists completed research in the areas of health, physical education, and allied areas for 1958. It is arranged in three parts — index, bibliography of research published in periodicals (*Athletic Journal* only coaching magazine listed), abstracts, and listings of unpublished theses.



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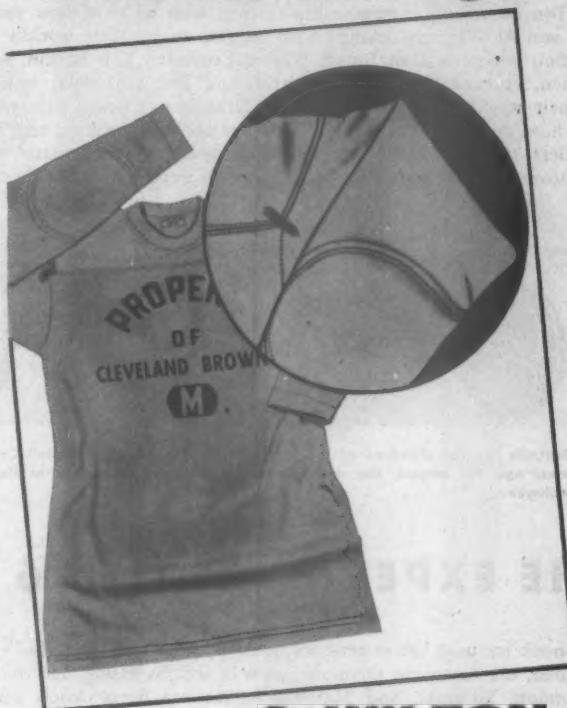
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The book you have been waiting for, a really authoritative book which tells you exactly how to include the best system of weight training, with regular training for all branches of sport. It tells how Jackie Jensen, Lee Walls, and Ted Williams trained with weights for baseball, how Billie Cannon, the fastest and strongest back of the year, trained with weights for football, how the Iowa team, which won the Big Ten basketball championship trained with weights, how swimmers, Dick Cleveland and Al Wiggins, trained with weights to set their world's records, how Reverend Bob Richards, Don Bragg, Harold Connolly, Bob Backus, Mal Whitfield, Parry O'Brien, Fortune Gordine, Al Oerter, and Bob Gutowski, trained with weights to set their world's records, how Frank Stranahan trained with weights for improved golf, how the Australian tennis players train with weights, and how the fencers, the wrestlers, the boxers, the oarsmen, the canoeists, the gymnasts, and the participants in a score of other sports should train with weights to improve their athletic ability.



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This book includes the experience of 36 years of weight training for athletes by Bob Hoffman, the American Olympic coach in weight lifting. He coached winning teams at London, Helsinki, and Melbourne. He has been closely identified with many sports as a contestant, coach, and official for a full half century. This book was 2½ years in preparation, but you will agree when you study it, that it was worth the effort, for it is a very valuable book. It has been said, "Where would the American Olympic Team have been without Bob Hoffman's boys, grown up?" Sixteen of these kids started to read "Strength and Health" magazine, before and as they entered their teens, with its stories of weight training for athletes, and then started to train with weights, and won Olympic championships at Melbourne. Bob Hoffman has been editor-in-chief and publisher of "Strength and Health," for 26 years. They got good results from following the Bob Hoffman training methods and using Hoffman's Hi-Protein and Energol, Germ Oil Concentrate. For 36 years, Bob Hoffman has been showing athletes the way to better athletic performance, the weight training and weight lifting way. Any man can improve at his favorite sport through weight training, as shown by this latest of the Hoffman books.

OVER 400 PAGES

BETTER ATHLETES, Through Weight Training, contains 400 pages, 300 pictures and illustrations, and a lot of valuable training information. No athlete or coach can afford to be without it. No longer is it a question of whether you should train with weights, if you don't train with weights, you will be pushed around, and out-performed by athletes who do use the Bob Hoffman method of weight training. You can learn the best methods of weight training from Bob Hoffman's book, BETTER ATHLETES. Our first printing is only 4,000, so if you want one of these books, send your order in at once. The price of this informative instructive book is \$5.00.

Lower Averages

(Continued from page 28)

to fall away from the plate with a consequent loss of force; and the pitch may be thrown by him due to the fact that the foot nearer the pitcher was not planted in time to allow proper rotation of his shoulders and hips.

If so many mechanical flaws occur as a direct result of misuse of the stride, and if a rotation of the hips and shoulders rather than a lateral movement of the body into the pitch is responsible for the power factor, why stride?

We do not mean that a player should hit flat-footed, but he should approximate a 45° angle to a line intersecting the pitcher's mound and home plate with the foot nearer the pitcher in order to utilize maximum hip rotation. Everything is basically the same as it would be in a typical swing, with the exception of starting with a wider stance and keeping the foot nearer the pitcher relatively stationary. Here the emphasis is placed on a rotation of the body around its axis rather than a lateral movement of the body into the pitch.

A study was made to determine whether the use of the stride in batting is justified in all cases. A group of relatively inexperienced high school players was divided into two equal groups on the basis of general motor ability tests, and after being given a preliminary test to insure equivalence of the groups with which to compare final results, the boys were given batting instruction for a period of four weeks. During this period one group used the stride and the other group did not employ it. At the end of this time both groups were tested again in terms of contact percentage and striking power. In the preliminary batting ratings, there was no significant difference between the two groups in terms of contact percentage and striking power. In the final test, after instruction and practice, the group of non-striders showed marked improvement in contact percentage, while the change in striking power was insignificant for both groups.

These results indicate that the use of the stride in batting does not contribute to striking power and may often hinder contact percentage. What coach would not welcome a few more balls just being hit in a game? Strikeouts are sudden death but a team that can get the ball rolling is putting pressure on the opposition. We have also found that batting without a stride is somewhat of a cure-all for hitting weaknesses. By employing this method for even a short time a player can overcome many bad habits. It's worth a try!

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WHILE taking inventory of football equipment, we recalled many articles which indicated that football planning should be done a year ahead. One step taken in that direction has paid rich dividends. This step was prompted by various articles on weight training for athletes.

Fortunately, we have a principal and a superintendent who believe in weight training. A room was vacated in our gymnasium to provide space for the program. The first step was to call all future prospective football players together and sell them on the value of weight training by using names such as Alan Ameche and Stan Jones as examples. The first season brought out every high school boy who later turned out for football, except one.

For nine weeks our bronco body building program was operated with 40 boys in regular attendance. Not all of these boys are, or ever will be, football players, but any boy in grades nine through twelve who was willing to spend one hour three times per week

in diligent calisthenic and weight training was welcomed.

Classes are limited to 13 because this number is about all our facilities will accommodate at one time. One class comes at 4:00 P.M. and the second at 5:00 P.M. At the present time we are conducting classes on a Monday, Wednesday, and Friday basis.

Each period is started with from six to ten minutes of calisthenics, followed by 45 minutes of weight exercises, and concluded with some vigorous rope jumping or running. The calisthenics vary somewhat but generally include the side straddle as a warm-up and to increase flexibility of the shoulders, a canoe exercise done on mats by rocking on the abdomen, a hurdle stretch of 15 to 20 seconds for each leg, and some sit-ups with sandbags on the chest or behind the neck.

Then weight training with barbells follows using two separate teams. Each team is equipped with a mat, knee bend stand, bench, plank for heel raises and for use on the bench for squats, barbells, and plenty of bulk weights. We have only 660 pounds of bulk weights and six 5 foot bars, but these seem to be ample.

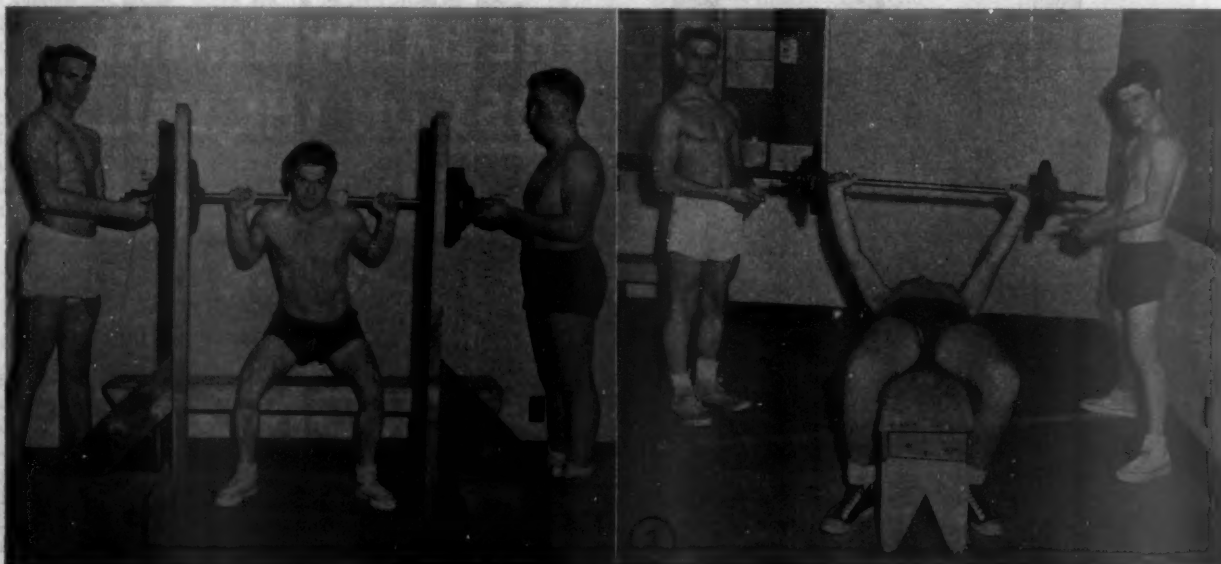
Incidentally, we also have four pairs

of dumbbells, a pair of health shoes, and about a dozen sandbags weighing from 13 to 31 pounds each. The dumbbells and health shoes are not used regularly. The health shoes are used for remedial cases and the weights for overly ambitious boys who need more than one set of the required exercises.

All participants are required to have a physical examination, a parent's consent in writing, and accident insurance. Another requirement naturally is that each boy wear our regular physical education uniform except that T-shirts are not required. Shoes must be worn at all times. For the 60 minutes that each class is in the weight room the boys are not allowed to go out of the room to drink water, watch basketball practice or waste time in general.

After the calisthenics, a warm-up lift is used by each team. The boys maintain the same order of exercise throughout the hour so they receive a three- to five-minute rest between exercises. The warm-up lift consists of four dead lifts, followed by four cleans to the chest, and then by four cleans with four presses added (Illustration 1). It is the best warm-up we have found because the exercise starts slowly and in

(Continued on page 52)



Body Building

By **CLYDE W. BUEHLER**

Football Coach, Ritzville, Washington, High School

Batting Successfully

(Continued from page 26)

almost completely around from the original position. The front arm on the bat should be bent, with the elbow flexed and bent downward. His back arm should be almost straight, except for a slight flexion in the elbow. The batter's head and eyes should be facing toward the pitcher, in the direction of center field. His weight should be concentrated almost entirely upon his front leg.

All of this action takes place in about one and one-half seconds. The hitting swing takes about one-half to three-quarters of a second, depending on the type of pitch, so that a batter must have a sharp eye, quick reflexes, good timing, judgment, confidence, and strength of arms, wrists, and shoulders in order to be successful.

Lew Fonseca, who has a lifetime batting average of .316 as a player-manager for 13 seasons, believes that a batter would be far more successful if he hit against the stride — not with the stride.

As explained previously, a batter should start his forward stride the moment the ball leaves the pitcher's hand. His head, shoulders, arms, and the bat should all be lowered because of the forward stride. The batter gets only a fast look at the ball as it leaves the pitcher's hand, but he should be in an excellent position to get a good look at the ball as it crosses home plate. He should be in a stationary position, called the split-second wait. During this fraction of a second wait, the batter is able to adjust the bat to the level of the oncoming ball. His hands should be held in the hitting zone, the zone behind the center of his body, as long as possible, in case the speed of the pitch changes. Then the batter should go into his hitting swing.

It will be noted that the batter has plenty of time to adjust the level of his bat to the pitch, to determine the spin of the ball, whether the pitch will be a fast ball or a breaking pitch, and to decide whether or not the pitch is in the strike zone.

In order for a batter to get his valuable long, split-second wait, he must start his forward stride when the ball leaves the pitcher's hand. He must take a fast look at the ball as it leaves the pitcher's hand, so that he can get a longer look at the ball as it crosses the plate. Obviously, this is the moment when he wants to see the ball as long as possible.

In sharp contrast to batters who hit against the stride, and all major leaguers do, we have those batters who hit with the stride. These batters believe in tak-

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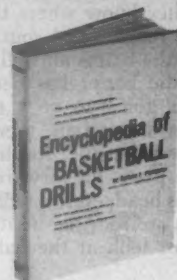
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ing a long look at the ball as it leaves the pitcher's hand, and not striding forward until they know where the pitch is going, its height, and spin. Getting one's eye on the ball is all well and good, but when the batter has decided that the pitch is going to be a strike, and the pitch is a fast ball, then he goes into his forward stride. As the ball is crossing the plate, his forward stride is hurried, his head, eyes, shoulders, arms, and the bat are moving, he is getting only a very fast look at the ball, he does not

have the time to adjust his bat to the level of the ball, he must start his swing with a jerky motion, and the result is usually a missed swing, an easy ground ball or a pop fly.

This type of batter is at a great disadvantage because he does not get that split-second wait, which would give him time to look the pitch over carefully, and to do whatever he chooses with the ball.

We see no alternative for these batters who hit with the stride except to

Philip L. Philip's college career was cut short by military service after which he entered professional baseball and was selected a member of the all-star team of the Evangeline League in his rookie year. Upon retiring from baseball, he entered the coaching field. Philip has written two previous articles for us, "Hitters and Place Hitting," and "Why Batters Fail," both of which appeared last spring.

change their form so they will hit against the stride. This is the only way for them to become successful batters.

The subject of a level swing is very important and, in our opinion, more emphasis on it is needed. "No batter can get all of his power into a swing which is not level," said Joe DiMaggio, who has a 13-year lifetime batting average of .325, hit 361 home runs, and is now a member of Baseball's Hall of Fame. Hornsby, Sisler, and all the other great hitters in baseball confirm this statement. A batter who hits a ball solidly with a level bat and level wrists produces a line drive just over the infielder's head, or a hot grounder, which half the time will go for a base hit.

A batter who uses a level swing offers more hitting surface of the bat in the path of the ball, so he has a better chance to connect with the ball. He can get a level swing only if the bat handle is on a level plane with the bat barrel. Obviously, this means that a batter must adjust his hands to the level on which the ball is approaching. Then he is in position to start his swing, which must also be level with the ball. A batter cannot fail to get a level swing if he has his hands at the same height as the pitch, and if he keeps his hips and shoulders level.

A batter's hips and shoulders should be synchronized in a hitting swing. If his hips are pointing down, it is impossible to get a level swing. The same can be said for his shoulders. They must be level when he is in the process of swinging at the ball. A batter who has his front shoulder down shows that his weight is concentrated on his front foot. He will top all pitches, so that anything pitched to him low will result in a weakly hit ground ball, even if he succeeds in hitting the pitch.

In direct contrast, a batter who lowers his back shoulder has his weight concentrated on his back foot, and consequently will be uppercutting the ball. Clever pitchers will then pitch him high, around the shoulders, and if the batter succeeds in hitting the ball, only pop flies will result.

In a word, a batter must have his weight evenly distributed on both legs, thus enabling him to have level hips and level shoulders, which are essential in producing a level swing.



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A Small College Football and Track Facility

By SAM KETCHMAN

Athletic Director, Ferris Institute, Big Rapids, Michigan

FERRIS Institute has one of the finest facilities for football and track among the small colleges of the country.

This facility, located near the south boundary of the Ferris campus, comprises 22 acres and consists of a varsity football field, standard quarter-mile track with a 220 straightaway, and two play fields located directly east of the varsity field. These play fields are used for football practice, intramurals, and the discus and javelin events. The entire area represents a total investment of approximately \$125,000 from public and private funds.

Our running track is the standard quarter-mile and is enclosed in reinforced cement curbs 24 inches deep. It is constructed on a 13 inch base of graded, washed gravel for drainage. A layer of four inches of coarse cinders rests over the gravel. The finish course has a two inch layer of mixed screened cinders and clay loam. In addition, the entire track is drained by field tile which encircles it at the point of the concrete curbing. Our running track is 25 feet wide and accommodates six

42 inch lanes for the running events. By starting on the east side of the track, all running events including the 220-yard dash and low hurdles, finish in front of the west permanent stands. By having the finish in front of these stands, crowd control is assured.

For the field events, except the javelin and discus, bleachers are erected at the northwest end of the field. Thus the spectators have a good view of the field events and do not come out to the areas where the activities are being held. When the field events are finished, the spectators can leave from this area and go directly to the west stands.

The field event area, located at the north end, is unique in that all events can be conducted in one central area, with the exception of the javelin and discus. As will be noticed in the accompanying diagram, the high jump has two approaches, one from the east and one from the west. There are two pole vaulting and broad jumping pits and one shot put area. Probably the most unique feature of this area is that contestants do not have to cross one area to reach another.

The permanent concrete and brick stands located on the west side of the field accommodate 2,500 spectators and are complete with press box, concession stands, rest rooms, and a general storage area. Located on the east side of the field are approximately 700 bleacher seats which take care of a total of 3,200 spectators for any football or track event.

The varsity football field which runs north and south is used only for varsity games. This field is underdrained with Oranburg perforated tile. The tile are set in a 30 inch trench for gravel aggregate. Each trench is ten yards apart. Drainage empties into a large collector tile which encircles the field. Catch basins for draining accumulated surface water are set at intervals at the circumference of the inner play area. Our football field is crowned and is 18 inches higher at the center than it is at the sideline.

Permanent steel pegs are buried at each corner of the field, goal lines and also at five yard intervals, enabling the maintenance department to relocate marking areas each fall and insure true marking on the field.

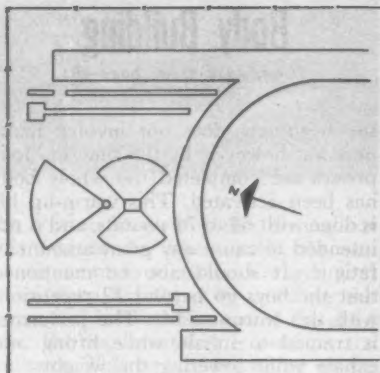
A scoreboard with separate control gear wired into the stadium box is located at the southeast corner of the field. The board is controlled from a vantage point in the permanent press box at the top of the west stands.

A portable aluminum irrigation system consisting of pipe three inches in diameter is used for sprinkling. A third of the field can be watered at one time by working from one hash line to the middle of the field and then to the other hash line.

Field telephones for use at football games and track meets are located in the press box and have permanent wires leading to the visitors' and home team side of the field. A feature of the telephone system is that all wires on the field are located underground with outlets on either side of the field. The telephones have been of great assistance in our track program in that all results are telephoned to the press box from the west side of the stands. Thus the scorer and announcer are able to keep a running account of the score of any meet.

Our lighting system is the most modern and efficient available. There are eight steel poles each 80 feet high. These are anchored in concrete footings ten feet deep. The wiring to the poles and other services is an underground conduit. Each pole is equipped with 12 aluminum flood lamps. The output of the 96 lamps is estimated in excess of 175,000 watts. Light intensity at mid-field is estimated at 30 foot-candles.

Our press box is located above the



west side permanent stands and is the most complete and modern press box of its kind. Its front is constructed entirely of glass thus insuring perfect vision for all activities. The press box is divided into three sections. We use the southwest section for the working press, public address announcer, and home team telephones. The middle section is used for radio broadcasting, overflow newspaper coverage, and visiting team field telephones. The northeast section has 16 permanent theater type seats which are used for guests of the college. Located in the southeast section of the press box is a public telephone for use in calling radio and TV stations and the wire services. An area located in the rear of the press box has electrical outlets for hot plates and coffee service. The entire press box is electrically heated.

The Phi Sigma Chi fraternity contributed their victory bell in order to establish a traditional victory bell on our field. The bell, which is located at the north end of the field, is the original fire bell of the city of Big Rapids. It was presented to the fraternity by the city as a token of appreciation for the many civic undertakings in which Phi Sigma Chi had participated in through the years and as a continuing symbol of the city's affection for the late Tom Freeland, fire chief of Big Rapids for 50 years, and an honorary member of Phi Sigma Chi.

The varsity field is appropriately named Top Taggart in honor of W. C. Taggart, a Ferris alumnus who lives in Big Rapids. In his undergraduate days, Mr. Taggart played varsity football. Subsequently, he became the first full-time football coach at Ferris. In later years he achieved eminence as the largest individual developer of gas storage fields in Michigan. When Ferris Institute was a private school, W. C. Taggart was a member of the board of trustees and president of that body. He continues to be a loyal friend and benefactor of the college.

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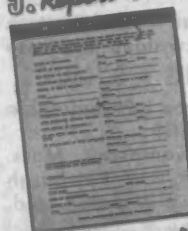
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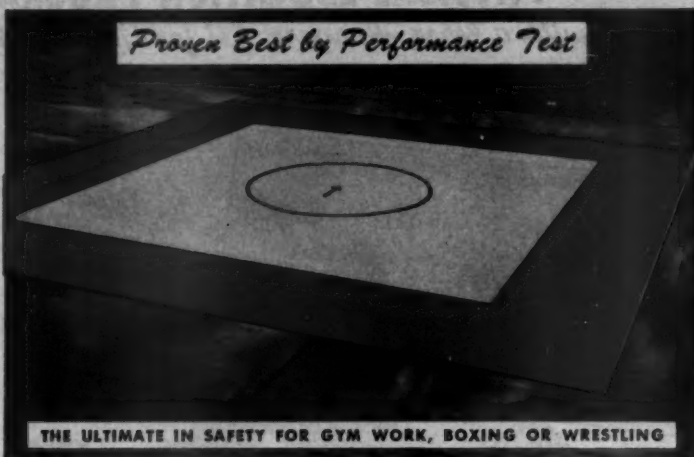


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Body Building

(Continued from page 46)

the beginning does not involve many muscles; however, by the time the four presses are completed the whole body has been activated. This warm-up lift is done with 64 to 74 pounds, and is not intended to cause any great amount of fatigue. It should also be mentioned that the boys go beyond 12 repetitions with this warm-up lift. The performer is trained to inhale while lifting and exhale while lowering the weight.

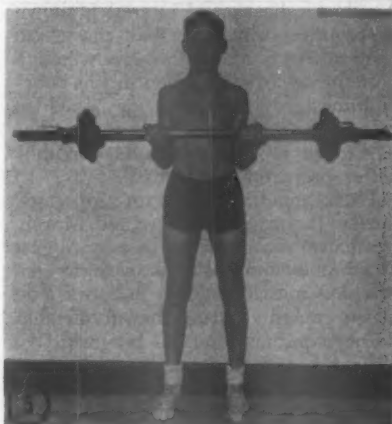
The second exercise is the stationary squat performed with the aid of knee bend stands, and a board which allows us to adjust the bench approximately knee high. Rules on the squats are that there be two spotters and each one be alert at all times (Illustration 2). The boy is instructed to go down far enough to touch his buttocks on the bench or board each time. Then he should inhale through his mouth and nose while raising on the squat, and exhale while on the way down in the squat. This exercise is used mainly to strengthen the quadriceps, and it should be emphasized that rhythmic breathing is vitally important in all weight training but especially so in the squats. The squat is performed with about three-quarters of the body weight to start and from 12 to 21 repetitions are used.

Our third exercise is the bench or supine press (Illustration 3). This one is performed with about half the body weight to start and from 8 to 14 repetitions are used. After a boy has reached 14 repetitions, 10 pounds are added. Then he goes back to 8 or 10 repetitions and works back up to 14 repetitions by adding a repetition or two at each workout. This exercise builds the triceps, deltoids, and the pectorals. Two spotters are used, and they place the weight on the performer's chest. We ask each boy to inhale while pressing the weight upward, and then hold his breath until the bar is down touching his chest. This added feature in breathing causes stretching of the pectorals because the chest box is expanded while the arms are being lowered. Another important coaching point is to have the boys take a wide hand hold which tends to build more pectoral bulk. At the present time we have several boys bench pressing 124 pounds and using from 10 to 14 repetitions.

Generally, some breathlessness is evident by this time so the pullover is used as the fourth exercise (Illustration 4). The boys perform this exercise while lying on their backs on a mat and using from 24 to 44 pounds on the bar. From 15 to 25 repetitions are used with not more than 44 pounds because we want



the boys to be comfortable throughout this exercise. In other words, the emphasis is not so much on strength as it is on deep breathing to ventilate the lungs and increase the size of the chest box. Reverse breathing is used on the pullover. This type of breathing means the boy exhales as he raises the weight to a position directly over his chest. During this exercise the boys are instructed to cross their lower legs and pull them toward their chest, a position which will place the lumbar region down on the mat and prevent low back strain.



Our fifth exercise is the full arm curl (Illustration 5). This exercise is performed with an underhand hold. In all cases, the boys stand against the wall so that their arms, mainly the biceps muscles, do the work, and not the back muscles. Occasionally they go to the chin-up bar which is located in the weight room and hang, stretching their shoulders, or do a set of chin-ups using the overhand or underhand hold.

The sixth exercise, the neck bridge, is shown in Illustration 6. This exercise is performed down on the mat using from 15 to 25 repetitions. We insist on hyperextension of the elbows and reverse breathing. This is a difficult exer-



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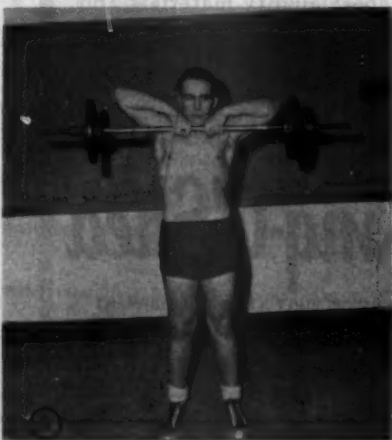
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cise and one which very few boys do well, but we feel they all put forth their very best effort. No one handles over 44 pounds in the neck bridge, and a few have enough with an empty bar of 24 pounds.

We follow the neck bridge with the bent over and upright rowing exercises (Illustrations 7 and 8). One week the upright row is used, and the following week the boys perform the bent over row. This exercise is used to develop the trapezius, deltoids, and other allied upper back and arm muscles. From 8 to 14 repetitions are used in the presses and curl. When 14 repetitions have been reached correctly, 10 pounds are added and the performer drops down to 8 or 10 repetitions and proceeds to work up to 14 repetitions again. When using the bent over row, we have the performer place his head against a mat on a vertical wall to prevent straightening up which would allow some low back muscles to be used.

Our eighth exercise is the calf raise or heel raise and is done on a two inch board on the floor (Illustration 9). The heaviest weight is used at this point because a heavy weight is necessary to develop the dense gastronomic muscles of the calf. We feel that the calf muscle can be rounded out the best by



doing one-third of the exercise in a pigeon-toed position, then one-third with the feet straight ahead, and the last one-third with toes pointing outward. The pigeon-toed variety is the most difficult in which to balance so that phase is done first before any fatigue sets in. The repetitions performed range from 15 to 24 which would mean from 5 to 8 in each of the positions mentioned. Spotters are an absolute must on this leg exercise as they are in the squat and the bench press. Breathing is done in the regular manner, which again means the boys inhale under tension and exhale when relaxing.

Our last resistance exercise is the military or overhead press (Illustration 10). This exercise is done at the end of the workout in order to give the deltoids and triceps muscles a rest after the bench press and rowing exercises before using these muscles again. Eight to 14 repetitions are used, adding weight instead of repetitions until 14 are reached. On this press we ask the performer to keep the bar where he can see it, except when he is doing the press behind the neck.

All of the repetitions and the amount of weight used are recorded on cards after the completion of the exercises. The cards contain the boys' names and are retained on the board for reference purposes, both for the performer and the instructor. After recording the press repetitions and weight handled, each boy finishes with three to six laps of rope running, or with 200 jumps while remaining in a stationary position, half of which are backward. Then each boy takes a warm shower.

This program is motivated in three other ways. They are the use of newspaper and magazine clippings concerning interesting phases of weight training, goals written on the board to be attained by each boy, and a measurement sheet to show the boys the difference in their size and weight due to weight training.

This program can be instituted successfully in any small or large high school with a minimum of expense, providing both the instructor and the boys

put forth maximum effort. We feel that the instructor should go through the routine to the best of his ability to further motivate the boys. One hundred and fifty dollars and some ingenuity will equip a room or a corner of the gymnasium for a weight training program.

Anyone who is interested in this type of program, but is afraid of it because of the muscle-bound possibility, will be interested to know that several authorities state such a possibility is now called the muscle-bound myth. In other words, it is impossible for a boy to become muscle-bound if he uses a joint to its full range of motion, uses antagonistic muscles in the same exercise period, and finishes off the exercise period with a speed and endurance drill followed by a warm shower.

We feel considerable interest has been developed in this program because several of the boys asked to use the weights during the summer months. Another indication of interest is shown by requests from basketball players to take part in our program. Even though no letter awards are given in this body-building program, one boy asked to withdraw from a varsity sport to take part in the program so that he would be better prepared for football.

Even though the program is operated during January, February, and March, we realize that June, July, and August are the best months of the year for developing muscles. As a result, we lend all our weights during the summer but do not conduct a formal program. We also realize that doing most of these exercises in sets will tend to blow up the muscles more, but the method of sets is not practical from a standpoint of time and equipment.

In conclusion, we would like to relate what was told to us by a nearby coach who had recently written a master's thesis on weight training. He believes that in five years the coach who is not using weight training will be lost in the shuffle, and we heartily agree with his statement, considering all other factors to be equal.



Keystone Combo

(Continued from page 22)

1. Touch the mound side of the bag with the left foot.
2. Step toward the pitcher's mound with the right foot.
3. After making the force, step toward first with the left foot as the relay throw is to be made.

The second baseman avoiding a runner who is sliding inside is shown in Illustration 2.

1. Touch the right field side of second base with the left foot.
2. Push off, placing the weight on the right foot.
3. As he is about to throw to first base, the second baseman should step with his left foot in the direction of first base.

This is Sidney Shulman's fourth season as baseball coach at Eli Whitney High School. Prior to accepting this position, he worked with paraplegics and was coach of the United States paraplegic team which won the 1955 Para-Olympics in London. He is currently working toward his doctor's degree at Columbia.

Illustration 3 shows the second baseman using a straddle-the-bag method.

1. Straddle the bag, and have the right foot touch the left field side of the bag.
2. After making the force, drag the right foot over the bag as the ball is thrown.



Illustration 3

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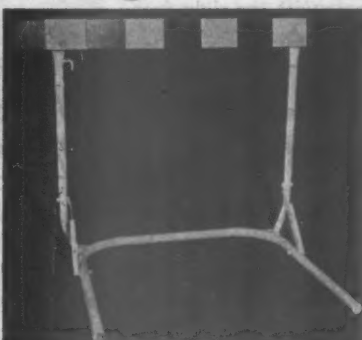
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Illustration 4

3. Leap into the air to avoid the sliding base-runner.

The shortstop will usually be moving toward first base on double plays, mak-



Illus. 5

ing the pivot a little easier. Actually, there is no standard pivot for the shortstop in making the double play, but there are variations which allow him to avoid base-runners who are sliding inside or outside, and also a straddle bag method for making a quick throw.

Illustration 4 shows the shortstop avoiding a base-runner who is sliding inside.

1. Touch the right field side of second base with the right foot.

2. After the tag, step off the bag.

3. As the shortstop throws, he should step toward first base with his left foot.

The shortstop avoiding a base-runner sliding outside is shown in Illustration 5.

1. Touch the mound corner of the base with the right foot.

2. The shortstop should step into the diamond with his left foot as he is about to make the relay throw.

Illustration 6 shows the shortstop using the straddle-the-bag method.

1. He should drag his left foot over the bag when he is stepping to throw.

In addition to being able to make the double play capably, the shortstop and the second baseman should also be fully aware of their respective fielding responsibilities in acting as relay men for plays from the outfield, backing up each other on pick-off plays, and moving into correct defensive position for bunts, squeeze plays, and steals.

Illustration 6



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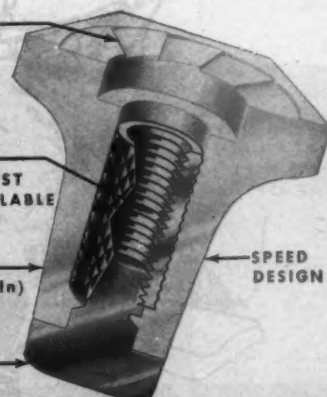
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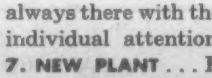
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From Here and There

(Continued from page 4)

average of 62 per cent . . . Out of 335 conference football games among Kansas high schools last fall only five ended in ties. This is less than 1½ per cent. Wonder whatever became of those crackpots with their fantastic ideas for ending tie games? Furthermore, in each of the 19 conferences studied, the champion was undefeated, and in no case would the breaking of a tie have affected the championship. . . Available free of charge is a 31-page Training Room Manual. This may be secured from the Bike Web Company, 309 W. Jackson Blvd., Chicago 6, Ill. . . Frank Teske's Virginia Tech wrestling team has only lost one meet over the past five years. . . Wally Butts of Georgia has more of his proteges coaching in college and high school ranks than any other coach.

Multiple T for Six-Man

(Continued from page 19)

halfbacks the best advantage for a fast start is a modified sprinter's position. They should place their feet as close together as necessary to enable them to



Illustration 8

use a dead run as quickly as possible. In the case of most boys, the feet should be from 8 to 10 inches apart. The toe of the rear foot should be approximately even with the posterior part of the heel of the lead foot. A large amount of the body weight is placed on the hand in order to provide a forward lean toward the line of scrimmage. For the left halfback it is advisable that his right hand be placed down and his left foot be forward of his right (Illustration 8). Therefore, the right halfback should place his left hand down and his right foot ahead of his left. This position should be used because on sweeps to the

right the left halfback carries the ball and vice versa. If the foot opposite the lateral direction desired is forward, then a quick lateral thrust is possible without sacrificing any part of the stance which helps to give the all-important forward speed to the dive hole. At first right-handed boys will probably feel awkward with their left hands down but they will usually adjust without too much trouble.

Center

Usually, a boy is selected for his ability as an end and then is taught the duties of a center. We believe our center exchange gives the center an unusually fast getaway and permits him to be used to great advantage as a blocker and pass receiver.

The center positions himself on the line of scrimmage so that his shoelaces indicate 3:00 o'clock. The toes of both feet should be on the same plane. He should place both of his hands on the ball behind the midline. His thumbs should be together and his weight forward on his hands. Then he slams the ball hard into the quarterback's hands turning it half a turn and over end on the way up. Thus the forward point of the ball is to the rear when it reaches the quarterback's hands. The center uses the same blocking technique as do the other linemen.

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Blocking

In the multiple T the players are instructed to start from a narrow stance. They are told that their feet should be about the same width as their shoulders and both toes should be on the same plane. By having both feet on the same plane we believe a player can block in either direction and use either foot with the same degree of efficiency. They are told to place as much weight as possible on their hands. Since our linemen rarely move laterally this position makes forward movement across the line of scrimmage easier. In contrast to some types of stance, the forward placement of weight places the lineman's tail as high as his shoulders (Illustration 9).

It is necessary that the line of scrimmage be open for the quarterback; therefore, the linemen's initial step must clear the plane at the forward point of the ball. The linemen should use one long fast step to get over this plane instead of two or three choppy steps. This is the most difficult and possibly the most important phase of blocking instruction. Our linemen are taught to block with the shoulder and foot on the same side. If the defensive player is to be blocked to the right, then his right foot becomes the lead foot and his right shoulder the blocking shoulder. His lead foot and blocking shoulder should reach



Illustration 9

the forward plane of the ball in one smooth motion and make stiff contact. Then the opposite foot is brought up quickly and approximately two feet forward of the lead foot. Obviously, this movement tends to turn the defensive player out of the proposed path. The next step in a block is to raise up the defensive player. The lineman should stand up quickly and be powerfully erect while maintaining contact when raising a defensive player. The purpose of this position is to keep the defensive player from getting solid shoulder contact with the backs. By the time the stand-up is completed the backs should be clear of the hole. Then if the defensive man overpowers the blocker, no

harm is done. This block should be executed quickly, but it must also be powerfully done.

Because of the speed with which this formation gets the ball past the line of scrimmage it is possible to send more men for downfield blocking assignments. We assume that the backs are running hard when they reach the secondary, making a sustained block unnecessary. Our downfield blockers are instructed to block through the men using a strong shoulder block. A shoulder block is used downfield on the assumption that at least 20 per cent of the time the blocker will clear the ball-carrier past his primary downfield assignment and then be able to perform another block for the ball-carrier in the open field. We instruct our downfield blockers never to leave their feet unless it is absolutely unavoidable. If they do go down on the block, it is their duty to hit the ground running, and make every effort to get back into the critical area of play.

Numbering System

It is our feeling that if three different offensive alignments are to be learned easily and thoroughly, there must be a similarity in the numbering of all three. The backs are not numbered, only the holes between the offensive linemen are given numbers. We use a dual number

Here is the block
with which records
are made

Event	Time	Place	Date
100-Yd. Dash	9.3	Fresno, Calif.	8/ 9/39
100-Yd. Dash	9.3	Fresno, Calif.	5/15/48
100-Yd. Dash	9.3	Evansville, Ill.	5/14/53
100-Yd. Dash	9.3	Fresno, Calif.	9/12/56
100-Yd. Dash	9.3	Durham, N. C.	3/ 5/56
100-Yd. Dash	9.3	Texas Relays	4/ 8/57
100-Yd. Dash	9.4	Abilene, Tex.	4/27/57
220-Yd. Dash	28.0	Sanger, Calif.	8/ 9/56
220-Yd. Dash	28.2	Los Angeles	3/ 7/49
440-Yd. Run	46.2	Salt Lake City	8/21/47
440-Yd. Run	46.0	Berkeley, Calif.	5/ 5/48
440-Yd. Run	45.8	Modesto, Calif.	3/28/56
120-Yd. H. H.	13.8	Fresno, Calif.	3/15/50
220-Yd. L. H.	22.2	Durham, N. C.	3/ 5/56
220-Yd. L. H.	22.3	Salt Lake City	8/21/47
400-Meter H.	48.5	Los Angeles	6/22/56
110-Meter H.	13.4	Sakersfield, Calif.	4/20/57
880-Yd. Run	1:46.8	L. A. Relays	3/24/57
2-M Relay	2:22.7	L. A. Relays	3/24/57
880-Relay	1:22.7	Texas Relays	4/ 4/57
440-Relay	39.9	Kansas Relays	5/11/57
100-Meter Dash	10.3	W. C. Relays	7/19/58
100-Meter Dash	10.3	U.S.A.-U.S.S.R.	8/29/59
200-Meter Dash	20.6	Pan. Am. Games	8/31/59
200-Meter Dash	20.7	U.S.A.-U.S.S.R.	7/29/59
400-Meter H.	50.5	U.S.A.-U.S.S.R.	7/29/59

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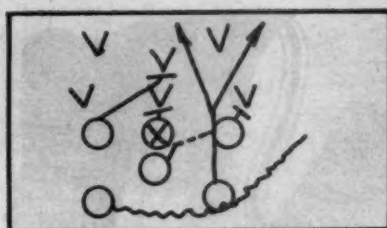
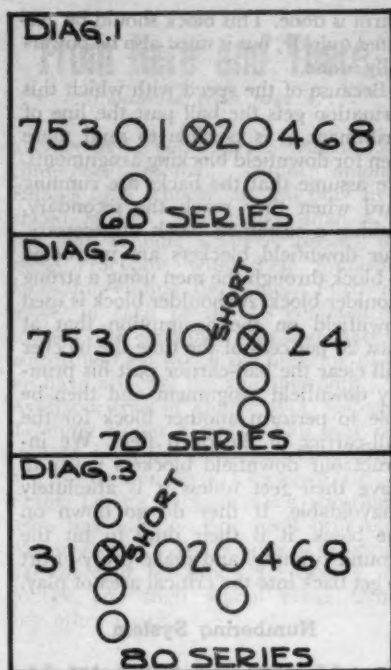
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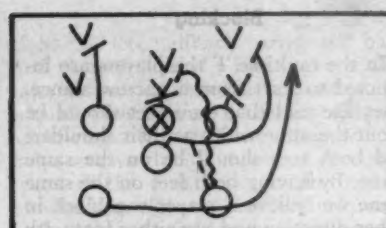
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62 and 64 dive holes against the 3-1-2.



66 sweep against the 3-1-2.

a pass play.

The left side of the line is numbered with odd numbers, small numbers to the inside 7, 5, 3, and 1. The right side of the line is numbered with even numbers, that is 2, 4, 6, and 8. The center is the O hole. The prefix 6 is used for the balanced formation; therefore, the left halfback straight into the line inside his end from the balanced formation would be 61 (Diagram 1). Because odd numbers tell our players the play is going to the left side and even to the right side, the prefix 7 is used for the unbalance to the left and 8 for the unbalance to the right.

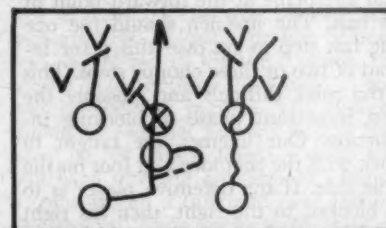
As will be noticed, the hole next to center in the seven and eight series is not numbered (Diagrams 2 and 3). This procedure is followed so that the

backs and linemen will run the same play on each last digit of the signal that is the same. In the seven series, which is unbalanced to the left, the 1 hole is still directly in front of the left halfback and the left end still has the same assign-

60 against the 4-2.

This is the counter play.

Notice the man to the center's right is not blocked.



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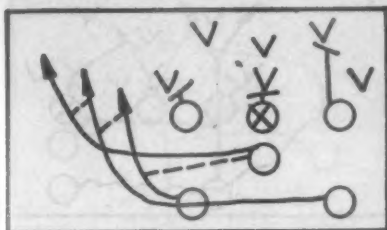
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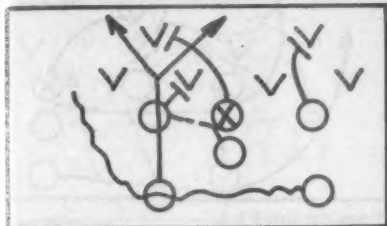
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67 against the 3-1-2.

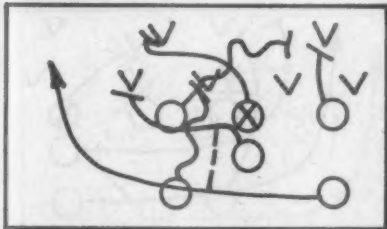


61 and 63 dive holes against the 4-2.

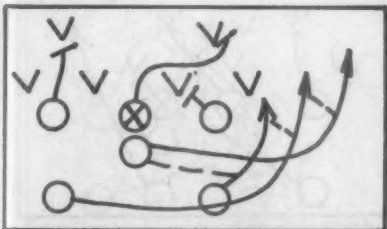
ment. The quarterback also moves the same as on 61. In the unbalanced formation the hole between center and the inside lineman is left without a number. We call the hole *short* on both unbalanced alignments. Thus the play 70 short would send the left halfback through the short hole. The numbers 2 and 4 are used with the seven series and 1 and 3 with the eight series in order to specify runs to the weak side.

In the beginning, all passes appear to be running plays; therefore, they all have the same number as their running counterparts with the addition of another prefix to signify pass. We use 9 for pass plays. A running pass from the six series starting as a wide sweep would be called 968. A pass from the eight series faking the 2 hole with the quarterback then dropping back to throw would be called 982. If he thinks it will be ad-

65 against the 4-2.



68 against the 4-2.



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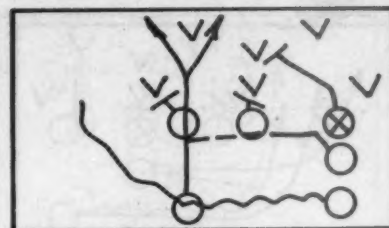
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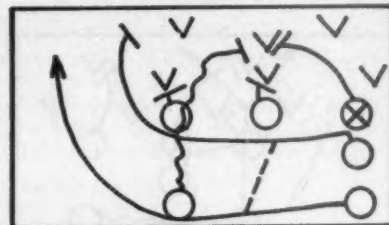
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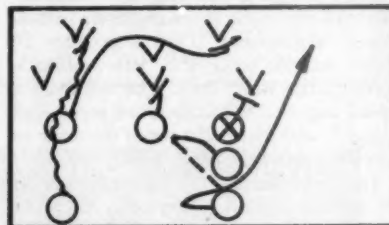


71 and 73 against the 3-1-2.



75 against the 3-1-2.

vantageous, the quarterback is allowed to call the pattern of his receiver in the huddle; therefore, the call in the huddle might be 982, center banana deep, left

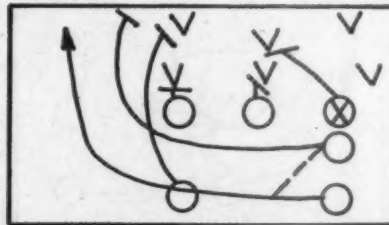


70 against the 3-1-2.

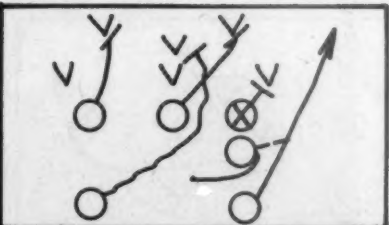
halfback buttonhook, and then the snap signal.

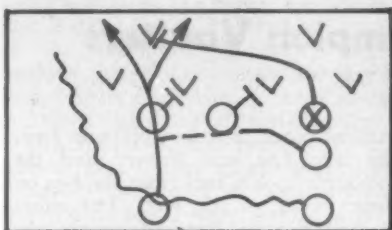
It will be noticed from the diagrams that the plays are run basically the same, but the defense is at a disadvantage in diagnosing all three quickly.

77 against the 3-1-2.

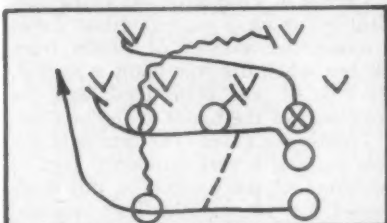


72 against the 3-1-2.





71 and 73 against the 4-2.



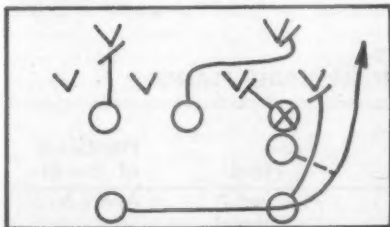
75 against the 3-1-2.

Because of the similarity between the 70 and 80 series we are only diagramming the former.

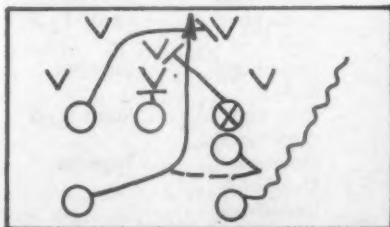
As shown in the diagrams, the players do not have good blocking angles on some of the plays. If the long, quick step block is used with the backs close to the line of scrimmage, it is still necessary to hit with the shoulder and foot on the side to which the defensive man must be turned. However, it is not necessary to move this man or maintain prolonged contact with him.

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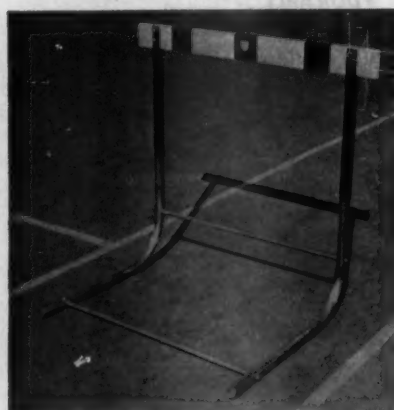


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Techniques of Champion Vaulters

(Continued from page 36)

used by the group of vaulters under study indicated that a run of approximately 140 feet is the most desirable. The body type of the vaulter and his speed largely determine the length of his run. Brewer uses the shortest run of 120 feet, while Laz and Richards preferred at least 150 feet. It can be assumed that the taller and heavier a vaulter is, the longer run he will require. The longer run permits the vaulter to gain maximum speed with a minimum of tension which is necessary at championship heights.

There appeared to be a tendency toward using only one check mark. Coaches generally agree that fewer marks probably promote a smoother, less interrupted approach to the take-off point. There was full agreement among the six vaulters as to the speed at take-off. They believed nine-tenths of full effort would bring them to the box relaxed and gathered for the vault itself.

The Standard Positions. The placement of the standards varies in accordance with the height of the bar and the type of vaulting form used by the athlete. In general, it can be said that at the lower heights the vaulter should have the standards back anywhere between eight inches to one foot, six inches. This distance allows the vaulter to get a long swing without fear of hitting the crossbar on the way up. At top heights the bar is moved in to near perpendicular, or a foot to eight inches back, depending on the type of form used by the vaulter. Many vaulters get a near vertical lift up the pole, which necessitates having the standards close, while the lift of other vaulters may not be as straight up and will require the standards to be set

back as much as a foot or more from the box. Laz and Brewer had the standards back a foot from the box on their vaults of 15 feet. The other vaulters had the standards nearly perpendicular at top heights.

The use of a mechanically sound pole plant is a must in good vaulting. Table 7 shows the number of strides from the box when the pole plant is started, the type of pole plant used, and the placement of the hands at the take-off.

Timing the Plant. The timing of the pole plant is a very important part of vaulting. All the vaulters in this study started the pole plant at least two and one-half strides from the take-off mark; three strides out is the preferred method.

As the vaulter is hitting his fourth step from the box, the pole is started toward the box with the right hand pushing it forward as the pole slides through the left hand. As the third step is taken, the pole is on its way into the box. At this point, the pole is directly in front of the vaulter, and on his last stride, he runs under the pole for his take-off.

The underhand shift is the accepted style in this group. The vaulters tend to get a smoother pole plant and a more consistent linear movement. Many vaulters believe in this style, that is, starting with the pole low and bringing it up as in the underhand shift, an upward momentum is added to the pole. In our opinion, an early underhand shift constitutes one of the most important phases of the vault.

The placement of the hands during the vault is somewhat similar with the top vaulters. The majority used a one-to three-inch spread. This close placement of the hands promotes a better

Table 7
COMPARISON OF TOP VAULTERS' POLE PLANTS

Name	Number of Strides From Take-Off Pole Plant Is Started	Type of Plant	Placement of Hands
Bragg	Three Strides Out	Modified Underhand	Apart 6-10"
Brewer	Three Strides Out	Side and Underhand	Apart 1-3"
Gutowski	Two and One-Half Strides Out	Underhand Shift	Apart 1-3"
Laz	Three Strides Out	Underhand Slide	Together
Richards	Three Strides Out	Side and Underhand	Apart 3-6"
Warmerdam	Three Strides Out	Modified Overhand-Underhand	Together

swing and pull. The swing is smoother and longer because it centers the point of the pendulum. However, some vaulters prefer their hands about six inches apart and claim to have more control of their vault and better pull-up.

The Take-Off. The position of the take-off foot is very important to the success of the vaulter. If the foot is in front of its mark, body control is lost and the vaulter will shoot into or under the crossbar. When the foot is behind its mark, momentum decreases until a good swing is virtually impossible.

Arm position pertains to the degree of bend in the arm as the pole is in the box and extended over the vaulter's head prior to take-off. All vaulters in the group studied had their arms flexed to some degree. The majority used a very definite flex, while the others were just slightly flexed. In any case, the arms should never be fully extended.

Most of the vaulters indicate that there is a definite spring upward at the take-off whether or not it is a conscious effort. After a study of these and other vaulters, we believe that a good spring at the take-off is a necessary part of vaulting.

The relationship of the take-off foot to the pole appears to depend on the style and type of vaulter. The six vaulters agree that the take-off foot should be directly below the top hand grip on the pole, that is, the take-off point invariably falls directly below a vertical line drawn from the base of the right hand. All of these vaulters take off with the foot directly below or slightly behind the hands one to two inches. A longer swing occurs when the foot is back, but there is more body control when the foot is directly below the hands.

Movement of the lead leg for this group of vaulters is forward and upward. The degree of effort cannot be accurately determined, but careful study indicates these vaulters make a pronounced effort to bring the knee forward and upward.

The Swing and Pull. We believe that the body movements from the swing and pull to the push-off position are explained best by a brief analysis of the method used by each of the participants as they completed this phase of the vault.

Bragg. At the take-off his arms were noticeably flexed. His hips were forward and he was in a hanging position as his body swung past the pole. As his body swung past the pole, there was a roll back with his head and shoulders, and his knees were brought into the pole in a cradle fashion. His arms were still in a semi-flexed posi-

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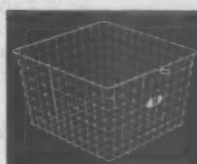
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Table 8
COMPARATIVE PUSH-OFF DATA OF SIX
CHAMPION POLE VAULTERS

Name	Height	Height Cleared	Effective Grip	Push-Off
Bragg	6'3"	15'9½"	12'11"	2'10½"
Brewer	6'1¼"	15'¼"	12'2"	2'8¼"
Gutowski	6'0"	15'9"	13'1"	2'8½"
Laz	6'2"	15'1"	12'10"	2'5"
Richards	5'10"	15'6½"	12'7"	2'6½"
Warmerdam	6'½"	15'8½"	13'3"	2'5½"

tion. As his knees reached the hand-hold, the pull was executed, and his legs were shot upward at near an 85° angle. The pole was kept near his chest during the pull and then moved to his shoulder during the push-off.

Brewer. His arms were slightly flexed during the swing. After his legs swung past the pole, there was a roll-back and his knees were in toward the pole. As the pull was made, his legs were shot upward and outward. His hands passed his face and the pole was brought into his right shoulder for the push-off.

Gutowski. His arms were flexed during the swing, and his body was in a hanging position. When his legs passed the pole, there was a roll-back on the pole and his knees were brought into the hand-hold. As his knees passed the hand-hold, the pull was started, and as his body raised and turned, his hands passed near his chin. The pole was brought into his right shoulder as the push-down on the pole was executed.

Laz. His arms were flexed at the take-off and extended slightly as his body swung past the pole. As his legs passed the pole, he rolled back, that is, he put his back to the runway and brought his knees into the hand-hold, with his arms still in a partially extended position. As his knees reached the hand-hold, the pull was started and Laz shot his legs upward. Then he brought the pole into his right shoulder as the push-off was executed down the pole.

Richards. After the take-off, his body hung along the pole until his legs passed the pole on the forward

swing. At this point he differed sharply from the other vaulters in that he did not bend his knees into the pole, but lifted his legs in an almost extended position. This type of body lift requires considerable strength, but is very effective in getting maximum body height. The pull-up was started by Richards as his legs went by the hand-hold on the pole and as his body raised, his hands went by his face and past his chest. When the push-off occurred, he brought the pole into his neck and his right shoulder, and extended his arms down the pole.

Warmerdam. His arms were flexed at the take-off. During the swing, his body hung below the pole with his hips leading. As his legs passed the pole, there was a tucking in of his knees toward the pole. At this point the pull was started and his legs were shot upward as the turn took place. The pole was kept into his chest during the pull and near his right shoulder during the push-off.

Push-Off and Clearance. We have indicated that all the vaulters showed a definite push-off. In some instances, they were not aware of the push-off action nor did they make any special effort to execute it. They believed when there was a strong, well-coordinated pull, there seemed to be little or no effort in pushing off and down the pole. The clearance used by the vaulters was the modified flyaway. Pictures and films show there was a very pronounced arch on the part of most of these vaulters at top heights.

The push-off is the distance a vaulter pushes his body above his top hand hold while clearing the crossbar. Table 8

Table 9
PRE-SEASON WEIGHT TRAINING METHODS
OF DON BRAGG

Exercises	Sets	Repetitions	Weight Used
Curls	1	10 - 12 - 14	105 lb.
Regular Press	1	10 - 12 - 14	140 lb.
Bench Press	1	10 - 12 - 14	190 lb.
Partial Squats	3	20 - 30 - 20	100 lb.
Reverse Curl	1	10 - 12	80 lb.
French Curl	1	10 - 12	80 lb.

shows the comparison of push-offs used by these vaulters and the factors related.

Effective Grip and Height Cleared. This information showed that two variables influenced the height of the hand hold on the pole. In order to hold high on the pole, a vaulter must have good height and speed. Good height can overcome the speed disadvantage and vice versa.

All of these vaulters have at least a 29 inch push-off and the best is a 34½ inch push-off by Bragg. Mechanically, the tall vaulter has the advantage due to higher grip and longer arms and body.

Training Procedures. The warm-up was used by all of the vaulters and included jogging, stretching, and sprinting. This type of exercise preceded all workouts and was very important because it tended to prevent pulled muscles.

All of the vaulters stressed the importance of sprinting as part of their regular season workouts. Running preferred by the vaulters varied from short sprints to the 440-yard dash.

Gymnasium work during the season appeared to be primarily gymnastics and weight lifting of one kind or another. This work served to keep the muscles in tone and developed better coordination.

After the season was underway, there was a tendency to vault only one or two days a week, two during the early season and one in late season. It should be kept in mind that these men were experienced vaulters who had their form highly developed. Beginning vaulters should vault as much as possible. This is the only way to become proficient in the vault. Bob Richards vaulted four out of six days even after many years of experience. This might be one of the reasons he cleared 15 feet more often than any other vaulter in history.

Almost all of the vaulters jumped for height or near top height at least once a week. Gutowski never vaulted for height except in meets, and Richards tried for height whenever he vaulted.

The Use of Weight Training. Warmerdam was the only vaulter of the group who did not use weights in his training program. It should be noted that weight training was not a popular training procedure at the time of his competition, and it has gained prestige only in the last decade. Warmerdam was very mature physically and a program of gymnastics added the required strength and agility which helped him become a world champion vaulter.

Laz used only two weight lifting exercises in his program. They were curls and the regular press. With curls

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Table 10
PRE-SEASON WEIGHT TRAINING METHODS
OF BOB RICHARDS

Exercises	Sets	Repetitions	Weight Used
Curls	3	10	70 - 100 lb.
Reverse Curl	3	10	70 lb.
Clean and Jerk	4	5	225 lb.
Regular Press	4	5	135 - 160 lb.
Bench Press	4	5	150 - 180 lb.
Bent-Arm Pullover	3	5	75 - 100 lb.
Partial Squats	4	5	100 - 120 lb.
Leg Raises	1	10 - 20	10 lb.

he used three sets with maximum repetitions and used 70 to 120 pounds in weight. In his regular press, he used one set with maximum repetitions and used a weight of 130 pounds. His training consisted of various types of

gymnastic work plus rope climbing, chin-ups, sit-ups, and other exercises. The other four vaulters used weight training to a more pronounced degree.

In order to show more clearly the weight training methods used by Bragg,

Table 11
PRE-SEASON WEIGHT TRAINING METHODS
OF BOB GUTOWSKI

Exercises	Sets	Repetitions	Weight Used
Curls	2	10	75 lb.
Regular Press	5	5	100 - 110 lb.
Bench Press	3	10	120 lb.
Bent-Arm Pullovers	3	10	120 lb.
Toe Raises	2	10	200 lb.

Brewer, Gutowski, and Richards, Tables 9, 10, 11, and 12 were made up. These tables indicate the exercises, sets, repetitions, and weights used by each individual in his training program.

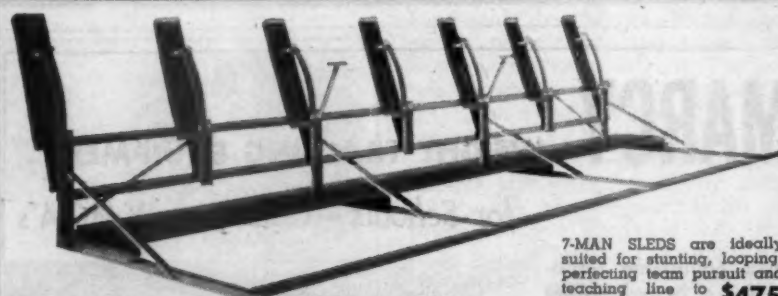
Bragg's weight training is conducted during pre-season training and during the competitive season. His repetition of exercises never exceeded 14 or fewer than 10. He believed this was the best method for him to use.

Richards often increased the weight lifted, and decreased the number of repetitions used. Richards credits weight training for much of his vaulting success. He did very little weight work with his legs because he believed it would increase the weight of his lower limbs and thus handicap his vaulting.

Bob Gutowski lifted weights during pre-season practice on Monday, Wednesday, and Friday. During the season he did weight training on Tuesday and Thursday for about one hour.

Brewer's weight training schedule appears to be lighter in most respects than that of the other vaulters. This is probably because he is much younger and not as physically mature as the other vaulters.

The heavier weight training of these



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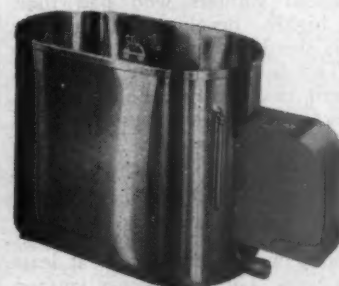
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Table 12
PRE-SEASON WEIGHT TRAINING METHODS
OF JIM BREWER

Exercises	Sets	Repetitions	Weight Used
Curls	3	10	30 lb.
Clean and Jerk	3	7	120 lb.
Regular Press	3	7	100 - 140 lb.
Bench Press	3	10	130 - 150 lb.
Full Squats	3	5	150 - 170 lb.

vaulters takes place primarily during the off-season. Some weight training is done during the season to maintain muscle tone, but on a reduced scale. The training was done every other day and usually on Monday, Wednesday and Friday, following the theory that weight training should be done on alternate days.

The weight used varied with the

individual but should neither be too heavy nor too light. In general, the weight should be heavy enough to offer muscle resistance according to the individual and the type of exercise being used. The repetitions used varied from five to 20 depending on the exercise being employed. The sets used varied from one to five, but three sets were the most popular.

Three-Step Method of Shot Putting

(Continued from page 20)

are in the O'Brien method. We believe there is less pause and hesitation between the shift and the delivery in the new method. The delivery starts as soon as the right foot is planted in the center of the circle.

Each athlete will have to work out the length of his three steps in accordance with his own build. Of course, he must take the steps quickly and should be able to maintain his balance so that he does not foul on his toss.

Once the athlete has started to use this method, the advantage is that the shot will remain constantly in motion in the direction in which it will be thrown.

While we have no quarrel with the O'Brien method, it will be noticed that given a 16 pound shot to toss for the first time, or 12 pound in the case of a high school athlete, the youngster will revert back to the style used years ago in which the right-handed boy faces to his left, and then takes two steps to the side. We believe the Wooster style is better because the athlete gets better push-off power with his right leg.

Coach Sterling Geesman of Ohio Wesleyan University believes that the Wooster method definitely has merit. He agrees with us that the O'Brien method is no cure-all for shot putters and many boys are better off using the old orthodox style.

"I believe this style is a happy medium between the old style and the O'Brien style," said Geesman.

"I have observed in physical education classes and intramural meets that when boys try to put the shot they attempt to imitate the good putters and about 90 per cent of the time their homemade style resembles in theory the style developed by Coach Mun-

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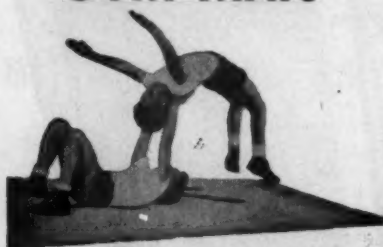
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Carl Munson came to Wooster College in 1921 as a member of the physical education staff and track coach. He is one of the few men still coaching who was in the field when this publication was founded. Munson is a graduate of Springfield College.

son," he added.

Geesman wrote that for the 1960 season he definitely plans to do some experimenting with this style.

Basically, we have the shot putters start from a low position, and are still experimenting with the extent of flexion of the knee. The shot will then be moving forward and upward from this start until it is finally released.

There is one other point which we consider quite important, especially in those regions where facilities for indoor early-season work are lacking.

By taking two short easy steps instead of the hop to get momentum, far less strain is placed on the putter's leg. On cold spring days the hop method can easily cause leg injuries.

Some coaches have used a stance somewhat similar to ours; however, most of them have given up this style because it fails to get enough power into the effort. These coaches made the mistake of having the right-handed athlete take his first step back with his right foot, then turn and make the put. Thus the athlete is really making the effort with just two steps instead of the three we use. Two steps mean a loss in momentum and we can see why coaches have not made much use of this style.

This method is quite a change yet it is not a radical one. Younger shot putters who have changed over to this style find it much easier to take the two steps than to acquire the exact balance needed before they can stand on one foot and then hop. We shall watch

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THE ATHLETIC JOURNAL

with considerable interest one of our athletes who is 6 feet, 3 inches tall and weighs 245 pounds. He is a letterman as a distance freestyle swimmer and has splendid shoulder development.

Coach Ralph Bibler of Oberlin College is quite enthusiastic about the Wooster method. When asked about it he wrote:

"During our pre-season practice meet with Wooster last April I was most interested in seeing Wooster shot putters using a simple but effective way of crossing the circle. Wooster's Coach Munson graciously explained and demonstrated this new experimental technique to me and to my weight men.

"Two of our men who employed the O'Brien style worked with this Wooster method. During the ensuing weeks, improvement in feet and inches measured 2 feet, 7 inches and 2 feet, 11 inches better than any previous throw. Neither man had thrown the 16 pound shot a great deal before and would have improved some with any style."

We like this simplified method of crossing the circle for four reasons:

1. Even novice putters are able to keep the shot in motion into the final drive phase.
2. Balance during the crossing of the circle is achieved more readily.
3. There appears to be less foot fouling with this method, which probably stems from better balance.
4. Length of steps for men of different size is adjusted easily.

Baseball Check List

(Continued from page 15)

base when the third baseman leaves the base to catch the ball. 15. Be able to go far to your left around second base to get balls hit through the middle. 16. On all hits to right field be ready to cover second base. 17. Be sure to back the second baseman when he takes a throw. 18. Think every pitch is going to be hit to you. 19. Always know the tactical situation. 20. With a runner on first be sure to cover second on all balls hit to the right field side of the pitcher. 21. With a runner on second be sure to keep him close. Do not let him get a long lead to go home on a hit. 22. With a runner on second, if you muffed the ball, throw it to the third baseman, who will get the runner who has over-run third base. Think constantly about getting someone out. 23. When you are taking a throw from the outfield, ask the second baseman for instructions. 24. Act as a cut-off man on throws to third from right field. 25. Toss or throw the ball chest high on the glove side when double plays are attempted. 26. In starting a double to you, throw the ball

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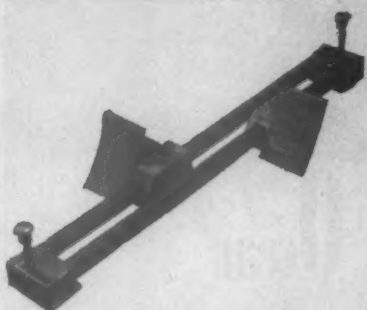
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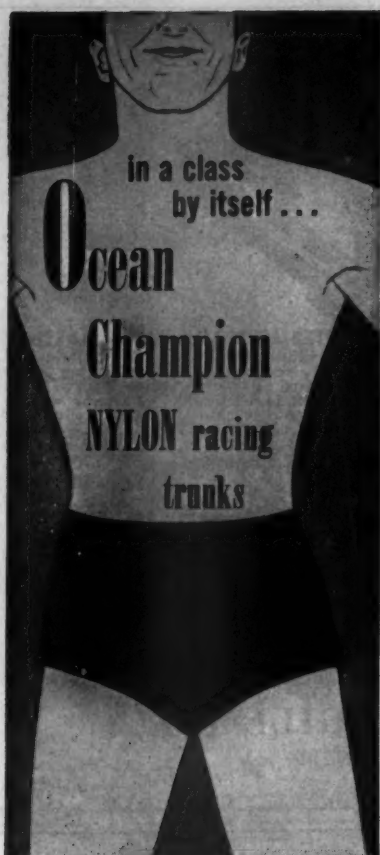


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from the position you are in when you field the ball. 27. Keep up constant chatter. 28. Relax but be alert in playing your position. 29. Keep your weight on the balls of your feet. Start a slight lean as the ball is pitched, and stay low, with your legs bent so you can move instantly. 30. Our keystone combination must be strong if we are to be a good defensive team.

Outfielders

1. Outfielders must be good hitters.
2. Maintain the maximum hustle at all times.
3. Always run in to the bench after the third out.
4. Back up every throw and base.
5. On a pitch-out with the throw to first base, the right fielder backs up the throw.
6. You must be able to judge fly balls and eye them into your glove. Never be guilty of dropping an easy fly ball.
7. In going to the right or left, use a cross-over step. Push off and go to the ball.
8. Never let a ground ball get through. You are the last line of defense. Put your glove on the ground, go down on one knee, and stop the progress of the ball at all costs.
9. Learn to shade the sun with your glove hand. Look the ball up to the sun and then pick it up on the other side of the sun.
10. You must be able to throw overhand with good accuracy.
11. Throw strikes to your cut-off or relay men.
12. The center fielder will act as the outfield quarterback. He takes what he can get. Be sure to call, *I have it*, and wave the others away. Outfielders must never let a fly ball drop in.
13. If the pitcher is fast, the batters will probably hit late. Play accordingly.
14. If the pitcher is slow, the batters are likely to pull the ball. Play accordingly.
15. Analyze the wind situation each time you take the field.
16. If the pitcher is in a hole and has to groove one, back up a little and expect a long fly ball.
17. Remember the batters as the game progresses.
18. Always know the

tactical situation. 19. Expect the next pitched ball to be hit to you. Know in advance just what you are going to do with it when you get it. 20. On throws to the plate make the ball take one bounce and into the catcher's glove. 21. Aim the ball to the cut-off man's chest on throws to the plate. 22. The center fielder must be fast on his feet and able to move quickly. 23. He must back up throws to second from the catcher. 24. Check the condition of the ground in your area. If it is smooth, the ball will bounce true; if not, go down on your knee on grounders. 25. Get under fly balls whenever possible. Use your glove under the ball most of the time. 26. On long hits turn and run back and then turn around and catch the ball. 27. Be sure to know when not to catch a foul fly. 28. Always throw overhand because it is more accurate. 29. Call and tell other fielders where to throw the ball after catching it. 30. Before each pitch have your legs bent, weight on the balls of your feet. Be ready to move like lightning at the crack of the bat.

Golf Exercises

(Continued from page 32)

ments are able to coordinate the proper speed and plane of the club into the ball, a good shot will result. We mean that correct rhythm and proper position of the club head at impact are primary in producing the necessary shot in golf. The shot cannot be accomplished by mere strength.

There are very few individuals who are so weak in the shoulder area that they cannot swing a club. Most people lack strength in their hands, wrists, and particularly in their left hands. This lack of strength is more prevalent in the case of women than men; however, neither girls nor boys have adequate strength in their hands and wrists.

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The strength of the shoulder girdle does not play an important part in the successful golf swing; however, the strength of the pectoral and deltoid muscles can be improved by simply swinging a club back and forth. The arms and trunk must have freedom of movement before any kind of rhythm can be developed.

Golf Grips

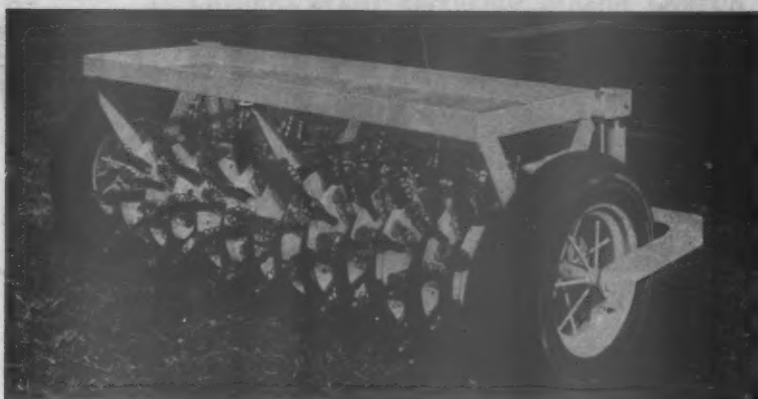
It is interesting to know how much strength a person has in each hand. By using the hand dynamometer it is possible to measure strength by the pounds registered. Then the instructor will know how much work is needed to strengthen his students' hands. Most people will find that their right hand will register from 20 to 50 pounds more strength than the left hand. The majority of people will not realize this fact; therefore, the teacher should devise exercises which will develop the necessary strength. Many mechanical devices can be used for the proper exercises. After several weeks of using the mechanical devices, measurement can be made again to see what progress has been made. Using the hand dynamometer is the only objective way to see what has happened. Squeezing a small rubber ball is a good exercise. It is advisable to use two methods when squeezing a ball (1) with the arms hanging down and (2) with the arms extended straight out in front of the body.

Pivot Exercises

One of the best exercises for developing the proper pivot is to have the player stand against and facing a wall or have another player place his hand on the first player's forehead. Then have the player who is pivoting rotate his hips, going back on the backswing, and then through the downswing to the finish. With his head thus anchored, swaying is eliminated and the rotational motion is emphasized. The hips simply turn and do not sway when he is hitting the ball. Swaying is one of the weaknesses noticed in beginning golfers.

Keeping the Head Down

The head should not be held static and used just to watch the ball; its primary purpose is to maintain body balance. The student must understand the importance of keeping his head down. Notice the pivot and the head position as shown in the illustrations at the beginning of the article. The instructor or another student can place his hand against the player's forehead and have the person actually swing the club.



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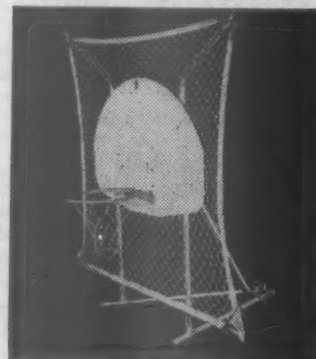
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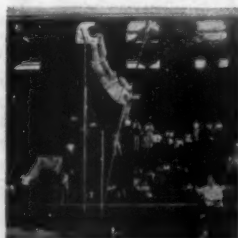
THE new six fingered "Trap-Eze" gloves are available in ten different autographed models. The "sixth finger" palm extension produces one continuous pocket with "Trapper" action. Also included in these gloves is the "U" laced heel for flexibility and top glove control. Another new feature is the tailored adjustable slim wrist opening for maximum control and comfort. A folder is available from Rawlings Sporting Goods Co., 2300 Delmar Blvd., St. Louis 66, Mo.

ONE of the finest trainers' aids we have seen in some time, this portable whirlpool bath is designed to be taken home by the injured athlete and used in his own bathtub. It is compact, easy to carry, and weighs about 25 lbs. Suction cups on the agitator head of the "Aqua-Spa" permit the flow of water to be directed to any particular part of the body and also produce gentle action or deep turbulence. Folder available. Aqua-Spa Corp., 855 Sixth Ave., New York 1, N. Y.



AN innovation in football protective equipment is "Plastrum." It has greater flexibility than fiber, yet is more durable and shock-resistant. It will not absorb moisture or odor. No paint is used and it remains smooth with no sharp edges to worry about. For information write MacGregor Co., 4861 Spring Grove Ave., Cincinnati 32, Ohio.

THIS new "Sky-Ride" vaulting pole is made of a newly developed Alcoa aluminum alloy with an amazing tensile strength which is twice the strength of steel. The pole weighs only 4 lbs. and develops a powerful pull at the take-off. As will be noticed in the photograph, a powerful whip-thrust action reverses the tensile pull to a powerful thrust at the exact moment of take-off. The tapered pole is available in 14 and 16 foot lengths. Aluminum Athletic Equipment Co., Box 145, Wynnewood, Penna.



THE new 12-page Sand Knitting Mills football catalog is printed in four colors and features two-way stretch pants. These pants are knitted from 100 per cent nylon yarn. Also included is the famed Sand "elastex-ribett" pant. This fabric is a combination of rubber and nylon. Among the new jerseys is a V-neck feature with either long or short sleeves. The V-neck and cuffs can be purchased in contrasting colors. Socks, warm-up shirts, and sideline capes are also featured. Sand Knitting Mills Corp., Berlin, Wisc.

Development of Forearms, Wrists, and Shoulder Muscles

We use a homemade device to develop the forearms and shoulder muscles of our golf students. Take a 4-foot broom handle, notch a place in the center, tie on a small rope, and attach the rope according to the student's height. Then place a 5- to 8-pound weight on the end of the string. Rolling the rope around the broom handle with arms outstretched increases the strength of the forearms and shoulder muscles. The student should start with a few exercises each day and increase the number as he gains strength. Bending the elbows and then rotating the wrists as the rope is wound around the handle will add strength to the wrists and the forearms.

Leg Exercises

In order to teach a player the movement of his legs, simply have him move his left knee in on the backswing and move his right knee in on the downswing. Both knees must be flexed to provide the freedom necessary for moving into the ball. Many instructors tell the players to place a club between his elbows with the shaft across his back, and then using a count have him rotate back and forth with his left knee going in on the backswing and his right knee going in on the downswing.

Full Swing Exercises

When an instructor has a group, phrases and numbers can be used to practice the full swing. He should start with the student who is in the address position, which is assumed on the command *ready*. On the count of 1, the swing starts; on the count of 2, the student is at the top of his backswing. At this point there is a pause to make sure of proper position at the top of the backswing. On the count of 3, the swing starts downward. Once the club is below the student's right knee, the command is given to hit. This is the method we use to teach rhythm in the golf swing.

These are only a few of the exercises that are necessary for the development of good golf swings, and they should be used when the instructor is teaching on a mass basis. Most of the exercises do not require expensive equipment. No matter how much a person is limited in the use of his muscles, these exercises can be employed to help him enjoy a better golf game. The most important single factor is the desire of the player to improve his condition, and by using these exercises he will make progress.

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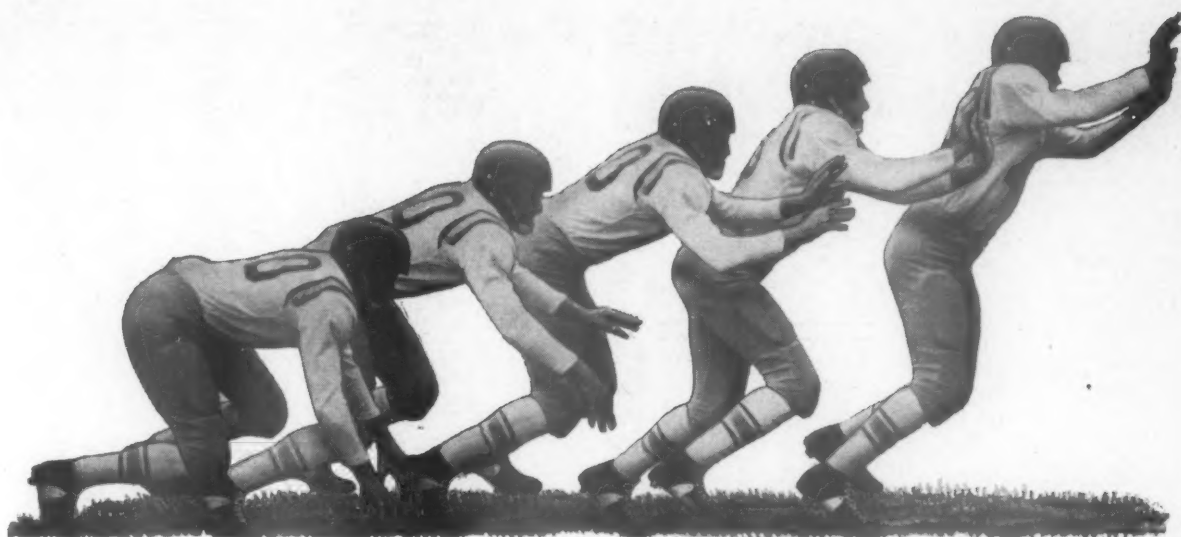
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